Department of the Environment
Scottish Office Environment Department
Welsh Office

PRIVATE WATER SUPPLIES

A Consultation Paper

[illegible]

January 1991

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PREFACE

This consultation paper seeks views on proposals about the content of regulations covering the functions of local authorities under the Water Act 1989 and the Water (Scotland) Act 1980 in relation to private water supplies. Regulations are necessary in order to ensure satisfactory implementation of the EC Drinking Water Directive and the national quality standards contained in the Water Quality Regulations. These proposals have been prepared following assistance from an Advisory Group containing representatives of Government Departments and members nominated by the local authority associations, the Institution of Environmental Health Officers, the Association of Public Analysts and the National Consumer Council. The proposals apply to England, Wales and Scotland.

Any comments on the proposals should arrive not later than Friday 22 March 1991 at the addresses as shown below.

England and Wales

Two copies of comments to Water Services Division, Department of the Environment, Room A440, Romney House, 43 Marsham Street, London, SW1P 3PY. Comments which are concerned with the implications of the proposals for Wales should also be copied to Environment Division, Welsh Office, Room 2-012, Cathays Park, Cardiff CF1 3NQ.

Any enquiries about the consultation paper or about the proposals for regulations should be directed to Mrs Nicola Crowther, Department of the Environment, Room A442, Romney House, 43 Marsham Street, London SW1P 3PY, telephone 071 276 8211.

Scotland

Two copies of comments to Water Policy Division, Scottish Office Environment Department, Room 220A, 27 Perth Street, Edinburgh, EH3 5RB.

Enquiries should be addressed to Mr Alan Tait (Room 106 at the above address), telephone 031 244 3017.

The Departments may wish to publish responses to this consultation paper in due course, or deposit them in the Libraries of the Houses of Parliament or the Departments' libraries, unless we are specifically requested to treat a response as confidential. Confidential responses will nevertheless be included in any statistical summary of numbers of comments received and views expressed.

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1. INTRODUCTION

1.1 A new legal framework for private water supplies used for domestic purposes was established by the Water Act 1989 and the new Part VIA of the Water (Scotland) Act 1980 (which was inserted by the 1989 Act). The Water Supply (Water Quality) Regulations 1989 (SI 1147), made under the 1989 Act, came into effect in England and Wales on 1 September 1989, and set detailed quality standards for both public and private water supplies. The Regulations have since been amended by the Water Supply (Water Quality) (Amendment) Regulations 1989 (SI 1384). They incorporate into domestic law the standards laid down by the European Community Directive of 1980 relating to the quality of water intended for human consumption (80/778/EEC), and in some respects set more stringent national standards. Similar provision has been made for Scotland in the Water Supply (Water Quality) (Scotland) Regulations 1990 (SI 119), which came into effect on 1 May 1990. The term "Water Quality Regulations" is used here to cover these statutory instruments.

1.2 In the case of public water supplies responsibility for enforcing the statutory standards lies with the relevant Secretary of State (that is the Secretary of State for the Environment in England, the Secretary of State for Wales in Wales, and the Secretary of State for Scotland in Scotland). A programme has been drawn up for improving those public supplies which may not at present comply with the statutory standards; this is embodied in undertakings accepted by the Secretary of State from water companies under section 20(5)(b) of the 1989 Act and water authorities under section 76E(4)(b) of the 1980 Act, and in the conditions attached by the Secretary of State to relaxations of standards authorised under Regulation 4 of the Water Quality Regulations. As well as setting standards for the quality of drinking water, the EC Directive also contains detailed requirements about the monitoring of supplies; corresponding, but more stringent, national requirements about the monitoring of public supplies were laid down in the Water Quality Regulations.

1.3 Responsibility for regulating private water supplies lies with local authorities in England and Wales, and with district and island councils in Scotland. Guidance to local authorities about action needed to implement the EC Directive was originally given by the Government in 1984 (DOE Circular 25/84, Welsh Office Circular 51/84, and SDD letter of 19 December 1984). In the light of the United Kingdom's subsequent acceptance that implementation of the Drinking Water Directive requires legislation rather than merely administrative action, it is now necessary to complement the Water Quality Regulations by making provision in Regulations for the monitoring of private water supplies by local authorities.

1.4 As well as drinking water, the EC Directive also applies to water used for food production, defined as the manufacturing, processing, preserving or marketing of food or drink, where the quality of the water affects the wholesomeness of the final food product. The Food Safety Act 1990 has extended the relevant provisions of the 1989 Act to cover water supplied for food production. The new Regulations now proposed will therefore cover private supplies used for food production as well as private supplies used for domestic purposes. A separate consultation exercise has recently taken place about the extension of the Water Quality Regulations to water supplied for food production purposes. Lastly, as a further safeguard for the quality of water while it is actually being used in the food production process, Agriculture Departments will be making Regulations in due course under section 16 of the 1990 Act, and these will also be the subject of separate consultations.

1.5 The overall impact on business of these proposals is not considered to be great. The costs need to be considered alongside the benefit of protecting public health, in particular in the case of private supplies used for food production purposes. The proposals will affect food and drink businesses which use water from private supplies and those businesses which use a private supply to provide water for their domestic needs. The paper proposes that businesses should meet the costs incurred by local authorities in sampling and analysing their supplies. An assessment of the costs involved for individual businesses can be made from the information in this paper. These will be new and recurring costs, although in the case of medium size food production businesses the costs will reduce over time.

1.6 This consultation paper seeks views on the scope and content of the Private Water Supplies Regulations which the Secretaries of State propose to make to cover local authority functions in relation to private water supplies. It is intended to supplement these Regulations with a Circular giving guidance to local authorities. Views are also invited on the draft of this Circular which is annexed to this consultation paper.

1.7 It is intended that the Private Water Supplies Regulations should come into effect on 1 July 1991, except for the requirements about monitoring programmes, which will come into effect on 1 October 1991.

2. SCOPE OF THE REGULATIONS

2.1 The primary provisions relating to private water supplies are contained in sections 56–59 of the 1989 Act: for Scotland, the parallel Scottish references are to sections 76F–76I of the 1980 Act. Section 56 of the 1989 Act (Section 76F of the 1980 Act) preserves the longstanding duty on local authorities to keep themselves informed about the wholesomeness and sufficiency of water supplies in their respective areas, including private supplies. Section 57 (Section 76G) gives local authorities new powers to secure improvement of private supplies or connection to a mains supply. They are able to serve a notice on the owner and occupier of the premises receiving water from the supply, the owner and occupier of the land where the source is situated and any other person who exercises powers of management or control in relation to that source specifying the steps to be taken, who is to be responsible, and the timescale. If necessary, local authorities are able to do the work themselves and to pass on the cost. The person on whom the notice is served may object to the notice under section 58 (section 76H). The local authority must then submit the notice to the Secretary of State for confirmation with or without modifications. As a result of a direction given by the Secretaries of State under section 56(4) (section 76F(4)) (reproduced as an annex to DOE Circular 20/89, Welsh Office Circular 47/89, SDD Circular 15/1990) local authorities must have regard to the terms of existing agreements, contracts or licences when drawing up such notices. Section 59 (section 76I) gives local authorities incidental powers to obtain information and enter premises.

2.2 Section 56(5) of the 1989 Act (section 76F(5) of the 1980 Act) enables the Secretary of State to make Regulations governing the performance of any duty imposed by or under that section, or imposing duties and conferring powers on local authorities with respect to the acquisition of information. Section 56(6) (section 76F(6)) gives examples of other matters that may be dealt with in Regulations, including the recovery by local authorities of the expenses incurred in exercising their powers or performing their duties.

2.3 It is proposed that the Private Water Supplies Regulations should:

(i) specify the information that local authorities are able to obtain in respect of private supplies in their areas and require them to prepare and maintain a register of such supplies (see chapter 3 below)

(ii) specify the classes into which local authorities are required to classify the private supplies in their areas (chapter 4)

(iii) specify the parameters for which, and the frequencies at which, local authorities are required to monitor private supplies in order to determine whether they comply with the requirements of the Water Quality Regulations (chapter 5)

(iv) prescribe the maximum charges that local authorities may make for sampling and analysis (chapter 6)

(v) authorise local authorities to exercise their powers and perform their duties through prescribed persons (chapter 7).

2.4 It is not proposed to prescribe the methods to be used by local authorities in taking samples and making analyses. These are matters more appropriately covered in the Circular. However it is proposed to include in the Private Water Supplies Regulations a general requirement that there should be satisfactory arrangements for quality control.

3. OBTAINING INFORMATION ABOUT PRIVATE SUPPLIES

3.1 Section 59(1) of the 1989 Act (section 76I(1) of the 1980 Act) enables a local authority to serve a notice on any person requiring him to provide any information that the local authority reasonably requires in order to fulfil its responsibilities for private supplies. Section 59(4) (section 76I(4)) provides for Regulations to be made to restrict the information that may be required under section 59(1) (section 76I(1)). It is proposed that the Regulations will enable a local authority to require the following specific information from the relevant persons as defined in paragraph 3.5 below:

(a) the name and address of the person providing the supply, or owning or occupying the land from which the supply is obtained, and of any person who exercises powers of management or control in relation to the supply;

(b) the nature of the supply (surface or groundwater, stream abstraction, run off, borehole etc);

(c) the properties in its area served by the supply, their location and ownership, and the purposes for which the water supply is used;

(d) an estimate of the volume of water supplied or used in the previous calendar year;

(e) the nature of any treatment carried out at any stage on the water supplied;

(f) the terms and conditions on which water is supplied, including any charges made for its supply; and

(g) information that will permit the local authority to assess the significance of a particular private supply for public health. It is proposed that this information should consist of an estimate of the maximum number of persons served by the supply on any one day during the previous calendar year; an indication whether the premises supplied are used for short–term letting (see paragraph 4.5 below); and, in the case of supplies used for food production, the estimated maximum number of people consuming the final food product on any one day during the previous calendar year (see paragraph 4.4 below).

3.2 A local authority will be required to prepare and maintain a register of all the private supplies serving premises in its area containing information on the matters mentioned in paragraph 3.1 (a)–(e) above, together with:

(a) dates and results of sampling carried out by the local authority;

(b) particulars of any relaxations authorised under Part III of the Water Quality Regulations;

(c) particulars of any action taken or required to be taken to achieve compliance with the standards in the Water Quality Regulations; and

(d) such other particulars as the local authority may determine.

In the case of a private supply serving premises which lie in more than one local authority area, each local authority concerned will be required to record on the register details of the supply and the properties in its area served by the supply. The register entry should record the names of the other local authorities within whose areas premises are served by the supply.

3.3 It is proposed that the Regulations should require initial entries to be made in the register in respect of the matters mentioned in paragraph 3.1 (a)–(e) by 30 September 1991. Thereafter entries relating to the results of analysis of samples will have to be made within 28 days of the day on which the result is first known to the local authority.

3.4 Without prejudice to paragraph 3.3, the local authority will be required to review at least once a year the information available to it about each private supply in its area and bring the register up to date.

3.5 The persons from whom a local authority will be able to require the information mentioned in paragraph 3.1 will be:

(a) the owners or occupiers of the properties supplied;

(b) the owners or occupiers of the land on which the source is situated;

(c) the owners or occupiers of any other land containing pipes or installations used for the purposes of supply;

(d) any persons who exercise powers of management or control over the source or the supply or the properties concerned; and

(e) any persons mentioned in any agreement, contract, licence relating to the supply concerned.

3.6 Any person receiving water from a private supply will be entitled to inspect the entry on the register about that supply. Views are invited on whether the register, or some of the categories of information on it, should also be open to public inspection.

4. CLASSIFYING PRIVATE WATER SUPPLIES

4.1 The extent of the monitoring necessary for a particular private supply will depend upon its significance for public health. It is therefore proposed that local authorities should be required to allocate the private supplies in their areas to classes defined in the Regulations, and that the monitoring requirements should be different for each class. It is proposed to define nine classes, as set out in Table I. In order to allocate private supplies to classes local authorities will make use of the information obtained as a result of paragraph 3.1 above.

4.2 Table I proposes two main criteria for allocating supplies to classes based on the number of persons and the volume of water involved. In the case of supplies for domestic purposes, the number of persons involved should be determined by assessing the maximum number of persons served by a supply for their domestic purposes on any one day (during the previous calendar year). The volume of water involved should be determined by assessing the volume of water distributed by or used from a supply (as a daily average over the previous calendar year). In an individual case, these criteria may give different answers. If so, it is proposed that the private supply in question should be placed in whichever of the two classes is nearer the start of the alphabetical sequence.

4.3 In the light of a recent judgement by the European Court (Case C–42/89 of 5 July 1990) it is clear that supplies serving single properties for purely domestic purposes are not covered by the EC Drinking Water Directive. The Court determined that water drawn by private natural persons for their own household use is outside the scope of the Directive. Supplies which fall into this category should be allocated to class F. This would include all supplies drawn by a single domestic property whether or not the supply is owned by the user or the source is within the boundary of the property.

4.4 For private water supplies used for commercial food production, the number of persons should be determined by estimating the maximum number of people consuming the final food product on any one day (during the previous calendar year). A private supply used for food production will therefore be classified either according to this criterion or according to the volume of water used in the food production process, whichever corresponds to the lower numbered class. Premises used for commercial food production will be defined as those used for the manufacturing, processing, preserving, preparing or marketing of food or drink (including water) for sale for human consumption on or off the premises; and will also include hospitals, other residential establishments and staff canteens whether free or otherwise. Water supplies used solely for growing crops or rearing animals, birds or fish will be excluded from the scope of the Regulations.

4.5 Supplies serving campsites, holiday villages and other establishments, including properties used for holiday lettings, with changing populations, would be allocated to the classes of supplies for food production.

4.6 The population criterion for the classification of multi-purpose supplies would be determined by adding together:

(a) the population served by the supply for domestic purposes;

(b) the number of people consuming the final food product in any one day from food production undertakings served by the supply and

(c) the number of people working and/or accommodated in any one day on premises with changing populations served by the supply.

A multi-purpose supply will be classified either according to this criterion or according to the total volume of water distributed by or used from the supply, whichever corresponds to the lower numbered class. Multi-purpose supplies which serve domestic properties as well as food production undertakings and/or premises with changing populations should be classified as supplies for food production.

4.7 If in a particular case the local authority cannot obtain precise information in order to apply the criteria in paragraphs 4.2–4.6, it is proposed that it should have power to decide, in the light of the information available to it, to which class the supply in question should be allocated.

4.8 Views are invited on the appropriateness and practicability of the criteria proposed in paragraphs 4.2–4.6, taking into account the monitoring requirements proposed for each class in chapter 5 below. The criteria of population served and volume of water produced or distributed are used in the EC Drinking Water Directive. Previous guidance from Departments recommended that the population served should be defined as the number of different people served in a year. It is thought that the criterion proposed in para 4.2 above, the maximum number of persons served on any one day, will be easier for local authorities to apply.

5. SAMPLING PROGRAMMES

5.1 In order to determine whether a private supply meets the standards defined in the Water Quality Regulations, it is proposed that specific requirements should be placed on local authorities to sample and analyse private supplies serving premises in their areas. The frequency of sampling and the number of parameters for which samples are analysed will depend on the class in which a particular supply falls and also to some extent on the judgement of the local authority about the parameters which are likely to be significant for that supply. A local authority will be required to notify the owner of the premises from which the sample was taken and, where different, the person required to pay the charges (see paragraph 6.5 below) of the result of the analysis of the sample. In the case of a private supply serving premises which lie in more than one local authority area, the local authority in whose area the majority of the premises lie will have the responsibility for sampling and analysing that private supply. In exercising its duty, the local authority will draw up a sampling programme in conjunction with, and with the consent of, the other authorities in whose areas the remaining premises are situated and if different, the local authority in whose area the source of the supply is situated. Sampling and analysis of the supply could then be carried out either solely by the local authority with responsibility for the supply or jointly by some or all of the local authorities with an interest in the supply.

Class A1 and B2 supplies

5.2 For private supplies serving numbers of people comparable to the numbers served by smaller public supplies, it is appropriate that the frequency and scope of sampling should correspond to what has been prescribed for such public supplies in the Water Quality Regulations. Column (2) of Table II shows the complete list of parameters which appears in the Water Quality Regulations. It is proposed that local authorities should be required to sample class A1 and class B2 supplies regularly for all these parameters. The proposed standard sampling frequencies are shown in column (5) of table II.

5.3 As with monitoring of public supplies, it is proposed that, in certain defined circumstances, the frequency with which a local authority is required to sample a private supply in class A1 or class B2 should be either increased or reduced. The proposed reduced and increased sampling frequencies are given in columns (4) and (6) respectively of Table II. The circumstances in which the sampling frequency would be either reduced or increased are specified in a footnote to Table II.

5.4 It is proposed that there should be an additional requirement about the sampling and analysis of class B2 supplies used for food production. For those parameters in category (v) of Table II, these supplies should initially be sampled twice a month (ie at the increased rate) until the local authority is satisfied that an individual supply complies consistently with the standards for these microbiological parameters. The local authority would then be able to revert to sampling at the standard frequency of 12 times per year.

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Supplies serving 500 people or less

5.5 For smaller supplies, a simplified approach to monitoring is appropriate. It is proposed that the parameters in the Water Quality Regulations should be divided into the 3 groups shown in table III. There would be a general requirement on local authorities to sample these supplies (apart from those in class F – see paragraph 5.9) regularly for 9 basic parameters and/or the 2 coliforms. For other parameters, it is proposed that the requirement placed on local authorities should be to sample regularly for any parameters which the local authority considers to be important in that particular locality.

5.6 For pesticides and related parameters, instead of a requirement to undertake regular sampling of individual supplies, local authorities will be required to undertake surveys of the private supplies in their areas from time to time in order to obtain an overall picture of the extent to which pesticides are present in such supplies.

Domestic supplies in classes C, D, E and F

5.7 Table IV shows the frequency of sampling proposed for the smaller domestic supplies. It is proposed that class C supplies should be sampled once a year for coliforms and separately once a year for the basic parameters plus any of the other parameters which a local authority considers to be important in that locality. Sampling of class D supplies is similar to that for class C supplies except that the separate sample for coliforms is not required.

5.8 It is proposed that local authorities should be required to sample and analyse all class E supplies within three years of the sampling provisions of the Private Water Supplies Regulations coming into effect (that is, by 30 September 1994) for the basic parameters plus any of the other parameters which a local authority considers to be important in that locality. There would be a supplementary requirement on local authorities to sample and analyse at least one–third of their class E supplies each year. However a local authority would not be required to sample and analyse a class E supply by 30 September 1994 if it had sampled and analysed the same supply for all the relevant parameters between 1 October 1989 and 30 September 1991 and has no reason to suppose that the quality of that supply has materially changed. As from 1 October 1994, the requirement on local authorities will be to sample and analyse their class E supplies every 5 years, and to sample and analyse at least one–fifth of such supplies each year.

5.9 Paragraph 4.3 explains that those supplies which are not covered by the EC Drinking Water Directive by virtue of a recent judgement of the European Court should be allocated to class F. Although it is not necessary therefore for supplies to single households to be monitored routinely, local authorities should carry out sampling at their discretion with a view to ensuring that the water does not pose a threat to public health.

Supplies for food production in classes 3, 4 and 5

5.10 The EC Drinking Water Directive requires that water intended for food manufacturing must be monitored at least once a year. In the light of this, and the potentially greater risk to public health from unwholesome water used in food production, it is intended that the smaller supplies used in whole or in part for food production purposes, or serving premises with changing populations, should be sampled more frequently than the smaller supplies used solely for domestic purposes. Table V shows the frequency of sampling proposed for the smaller supplies used for food production purposes. It is proposed that supplies in class 3 should be sampled 5 times during the first year for total and faecal coliforms. 2 of these samples should be taken within the first 2 months of the sampling provisions of the Private Water Supplies Regulations coming into effect (that is, by 1 December 1991) in order to establish the microbiological quality of the supply. These supplies should also be sampled separately during the first year on two occasions for the basic parameters plus any of the other parameters which the local authority considers to be important in that particular locality. Thereafter, the supplies should be sampled 4 times a year for coliforms and separately twice a year for the basic parameters plus any of the other parameters which the local authority considers to be important in that particular locality. Supplies to food production premises which operate for 6 months or less should be sampled at half the prescribed frequencies (ie 2 times a year for coliforms and separately once a year for the basic parameters plus any of the other parameters considered important locally). In the first year, an additional coliform sample plus one of the prescribed coliform samples should be taken within the first 2 months of the supply being used for food production purposes in order to establish the microbiological quality of the supply. Class 4 supplies should be sampled twice a year for the basic parameters and once for any of the other parameters which the local authority considers to be important in that particular locality. Only one sample is proposed for class 4 supplies to food production premises which operate for less than 6 months. Class 5 supplies should be sampled once a year for the coliforms parameters.

Methods of sampling and analysis

5.11 In determining the times of year and times of day at which samples are taken, local authorities will be required to ensure that the samples give a reasonably accurate indication of the overall quality of the private supply involved. Where there is a requirement to take more than one sample in a given period of time, the local authority will be required to take samples at regular intervals over that period. In the collection and analysis of samples, a local authority will be required to secure, so far as is reasonably practicable, that it satisfies the quality assurance requirements imposed by Regulation 21 of the Water Quality Regulations in relation to public supplies. All samples will be taken from the consumer's tap. Where a particular supply serves more than one property, local authorities will be required to ensure that any samples they take are, in their view, likely to be representative of the quality of the supply. Wherever possible the property from which the sample is to be taken should be selected at random.

New supplies

5.12 Where it is proposed to bring a private supply into use either for the first time or after it has not been used for at least 12 months, the local authority will be required to sample and analyse it before the water is put into supply. Where a supply has been brought into use without the local authority's knowledge, the local authority will be required to sample and analyse the supply as soon as it becomes aware of it.

6. CHARGES FOR SAMPLING AND ANALYSIS

6.1 Section 56(6)(d) of the Water Act 1989 (Section 76F(6)(d) of the 1980 Act) provides for Regulations to be made to allow local authorities to recover expenses reasonably incurred in carrying out their duties. The Government's position, stated during the passage of the Water Bill through Parliament, is that local authorities should be able to recover at least the greater part of the costs they incur in regulating private supplies by levying charges on those owning or using such supplies. The Regulations will therefore empower local authorities to recover through charges the costs reasonably incurred in carrying out the sampling prescribed by the Regulations and analyses of the samples taken, and will set upper limits on the charges they are permitted to make.

6.2 On the basis of the information the Departments have been able to obtain about the costs of analysis, it is proposed that the maximum charges prescribed in the Regulations for each analysis should be those listed in Table VI.

6.3 It is proposed that, in addition, local authorities should be empowered to make a charge to cover the costs reasonably incurred in making visits to a supply to take samples for the purposes of the Regulations. The amount of this charge will vary with the amount of travelling involved. It is proposed that it should be subject to a maximum of £50 for each visit.

6.4 It is envisaged that local authorities will retain the discretion to waive charges in individual cases.

6.5 In order to resolve any uncertainty about who should pay the charges for sampling and analysis of a particular private supply, it is proposed that the local authority should determine for each supply which one, or more, of the prescribed relevant persons (as described in paragraph 3.5 above) will be required to pay the charges. In determining this, the local authority will be required to have regard to the terms of any agreement, contract, licence or other document relating to the terms on which water is supplied. In the absence of any such agreement, contract, licence or other document, it is proposed that, for supplies used solely for food production undertakings, the person so determined should be the owner of the property to which the supply is given; and for all other supplies it should be the owner of the land from which the supply is obtained. Where responsibility for a supply rests with more than one of the prescribed relevant persons, or a supply is given to a property or properties with more than one owner or occupier, the local authority should determine how the charges should be apportioned between them. (Section 76F(6)(d) as read with Section 109(1) of the Water (Scotland) Act 1980 contains slightly different enabling powers and consequently charging powers will be dealt with more explicitly in the parallel regulations for Scotland. The provisions, however, will have a broadly similar effect.)

6.6 Local authorities will be able to charge for taking and analysing only those samples which form part of the programme of sampling prescribed in tables II, IV and V. No charge will be permitted in respect of taking and analysing any repeat sample for the purpose of confirming an earlier result; or in the case of supplies in classes C–E and 3–5 for carrying out surveys of levels of pesticides and related products.

6.7 Local authorities will however be permitted to make a charge for taking and analysing a sample for the purpose of establishing that remedial action carried out (whether or not specified in a notice under section 57 of the Water Act 1989) (section 76G of the 1980 Act)) has improved the quality of water from a supply.

6.8 It will be necessary to review from time to time the maximum charges prescribed in the Regulations, and vary them if necessary by means of amending Regulations to reflect changes in the level of costs.

7. AUTHORISATION OF PRESCRIBED PERSONS

7.1 Some users or providers of private water supplies will have their own technical staff capable of carrying out sampling and analysis. It is proposed that, to cover such cases, the Regulations will authorise local authorities to perform their duties in respect of sampling and analysis through prescribed relevant persons. The prescribed persons will be:

(a) the owners or occupiers of the properties supplied; or

(b) the owners or occupiers of the land on which the source is situated; or

(c) persons acting on behalf of the owners and occupiers prescribed in (a) and (b) above.

A local authority will have the power to give written authorisation to a perscribed person to take, handle, transport, store or analyse (or cause to be taken, handled, transported, stored or analysed) samples of water from a private supply serving premises in its area for the purposes of the Regulations. Such an authorisation will specify that sampling should be carried out at particular intervals or on particular days.

7.2 In such cases, the local authority will be required to secure, so far as reasonably practicable, that the prescribed person is competent to perform the tasks he or she has been authorised to undertake and that the quality assurance requirements mentioned in paragraph 5.11 above are satisfied.

DOE WS
January 1991

TABLE I: CLASSIFICATION OF SUPPLIES

(i) All Supplies

Class	Maximum number of people served by the supply or consuming the final food product on any one day	Volume of water distributed by or used from supply m^3/day
A1	> 5,000 people	> 1,000
B2	501 – 5,000 people	101–1,000

(ii) Domestic Supplies

Class	Maximum number of people served by supply on any one day	Volume of water distributed by or used from supply m^3/day
C	101 – 500 people	21–100
D	25 – 100 people	5–20
E	< 25 people (except for supplies in class F)	<5
F	those residing in a single domestic property	

(iii) Supplies for Food Production

Class	Maximum number of people consuming the final food product or served by the supply on any one day	Volume of water distributed by or used from supply m^3/day
3	101 – 500 people	21–100
4	10 – 100 people	5–20
5	< 10 people	< 5

TABLE II: SAMPLING PROGRAMMES FOR CLASS A1 AND B2 SUPPLIES

	Parameters	Class of supply	Number of samples each year		
(1)	(2)	(3)	(4)	(5)	(6)
			Reduced	Standard	Increased
Category (i)	Conductivity Hydrogen ion Odour (qualitative) Taste (qualitative)	class A1	6	12	24
		class B2	4	6	12
Category (ii)	Odour (quantitative) Taste (quantitative) Turbidity Temperature Nitrate Nitrite Ammonium Iron Aluminium Manganese Colour	class A1	-	4	24
		class B2	-	4	12
Category (iii)	Trihalomethanes Tetrachloromethane Trichloroethene Tetrachloroethene Copper Lead Zinc Pesticides and related products (i) Polycyclic aromatic hydrocarbons (ii)	class A1	1	4	12
		class B2	1	4	12

Category (iv)	Chloride Sulphate Calcium Magnesium Sodium Potassium Dry residues Oxidizability (permanganate value) Total organic carbon Boron Surfactants Phosphorus Fluoride Barium Silver Arsenic Cadmium Cyanide Chromium Mercury Nickel Antimony Selenium Total hardness Alkalinity	class A1	-	1	12
		class B2	-	1	12
Category (v)	Total coliforms Faecal coliforms Residual disinfectant Colony counts	class A1	-	24	-
		class B2	-	12	24

Notes:

(i) ie any fungicide, herbicide or insecticide; increased or reduced sampling, where required or permitted, may be confined to the substance in question.

(ii) The sum of the detected concentrations of fluoranthene, benzo 3.4 fluoranthene, benzo 11.12 fluoranthene, benzo 3.4 pyrene, benzo 1.12 perylene and indeno (1,2,3–cd) pyrene.

NOTE TO TABLE II

REDUCED AND INCREASED SAMPLING FREQUENCIES

(a) Reduced Minimum Sampling Frequency

Where all results for a parameter in category (i) or (iii) have been less than 50% of the relevant prescribed concentration or value as specified in the Water Quality Regulations for the last 3 years and no factor is present which is likely to cause a deterioration in the level of that parameter, the frequencies of sampling for that parameter may be reduced to the reduced frequencies shown in Table II. In the case of hydrogen ion reduced frequency sampling may only be carried out if results over the last 3 years show that the pH value has not been below 6.5 and has not been above 8.5. In the case of total hardness or alkalinity (where water has been softened or desalinated), reduced frequency sampling can only be carried out if results over the last 3 years have shown a concentration that is no less than 90 mg Ca/1 or 45 mg HCO_3/1 respectively. In the case of qualitative odour and qualitative taste, reduced frequency sampling can be carried out if reduced frequency sampling is allowed for hydrogen ion or conductivity.

Local authorities may not sample at reduced frequencies for 3 years after the date the Regulations specifying monitoring frequencies for classes A1 and B2 come into effect unless they have carried out sampling of the supply concerned at least as regularly as specified in the Regulations, for the previous three years, and the results of the analysis of these samples meet the requirements set out above or in the local authority's opinion sufficient scientific evidence has been provided for such a decision to be arrived at.

(b) Increased Minimum Sampling Frequency

Where there is evidence or likelihood of any parameter in categories (i) to (iv) having exceeded the relevant prescribed concentration or value as specified in the Water Quality Regulations in any sample taken in any of the last three years the frequencies for that parameter shall be increased to the increased frequencies shown in Table II for the remainder of the year in question and the whole of the following year.

(c) Reversion to Standard Minimum Frequency from Increased Frequency

If the prescribed concentrations for relevant parameters have not been exceeded in the required period at the increased frequency the local authority may revert to the standard sampling frequency.

(d) Class B2 supplies used for food production

Class B2 supplies used for food production should be sampled twice a month (24 times per year) for category (v) parameters until the local authority is satisfied that an individual supply complies with the standards for microbiological parameters. The local authority would then be able to revert to sampling at the standard frequency.

TABLE III: SAMPLING OF DOMESTIC SUPPLIES IN CLASSES C-E AND SUPPLIES FOR FOOD PRODUCTION IN CLASSES 3-5.

(A) Coliforms
Total coliforms
Faecal coliforms

(B) Basic Parameters
Hydrogen ion
Conductivity
Total coliforms
Faecal coliforms
Lead(i)
Nitrate(ii)
Odour (qualitative)
Taste (qualitative)(iii)
Turbidity

Notes:

(i) samples must be analysed for lead unless the local authority is satisfied that lead pipework or solder is not present in the plumbing of the property or that naturally occurring lead is not present in the water.

(ii) samples must be analysed for nitrate unless the local authority is satisfied that nitrate levels in the locality concerned are at least 50% below the standard set in the Water Quality Regulations of 50 mg NO_3/1.

(iii) samples are to be assessed qualitatively for taste unless the person taking the sample has any reason to suspect that the water may give rise to a health hazard.

(C) Other Parameters
Odour (quantitative)
Taste (quantitative)
Temperature
Nitrate
Nitrite
Ammonium
Iron
Aluminium
Manganese
Colour
Trihalomethanes
Tetrachloromethane
Trichloroethene
Tetrachloroethene
Copper
Zinc
Polycyclic aromatic hydrocarbons (i)
Chloride

Sulphate
Calcium
Magnesium
Sodium
Potassium
Dry residues
Oxidizability
(permanganate value)
Total organic carbon
Boron
Surfactants
Phosphorus
Fluoride
Barium
Silver
Arsenic
Cadmium
Cyanide
Chromium
Mercury
Nickel
Antimony
Selenium
Total hardness
Alkalinity
Residual disinfectant
Colony counts

Notes (i) The sum of the detected concentrations of fluoranthene, benzo 3.4 fluoranthene, benzo 11.12 fluoranthene, benzo 3.4 pyrene, benzo 1.12 perylene and indeno (1,2,3-cd) pyrene.

TABLE IV: FREQUENCY OF SAMPLING OF DOMESTIC SUPPLIES IN CLASSES C, D AND E

	Number of samples each year		
Class of supply	(A) Coliforms(i)	(B) Basic Parameters	(C) Other Parameters(ii)
C	1	1	1
D	-	1	1
E	-	All supplies to be sampled within 3 years of Regulations coming into effect. Thereafter supplies to be sampled every 5 years	

Note (i) Sampling for coliforms is in addition to the coliforms sampling carried out as part of the sampling for basic parameters

(ii) A local authority should sample for any parameters which it considers to be important in that particular locality. Sampling should be carried out at the same time as sampling for basic parameters.

TABLE V: FREQUENCY OF SAMPLING OF SUPPLIES FOR FOOD PRODUCTION IN CLASSES 3, 4 AND 5

	Number of samples each year		
Class of supply	(A) Coliforms(i)	(B) Basic Parameters	(C) Other Parameters(ii)
3(iii)	4(iv)	2	2
4	-	2(iii)	1
5	1	-	-

Notes (i) Sampling for coliforms is in addition to the coliforms sampling carried out as part of the sampling for basic parameters

(ii) A local authority should sample for any parameters which it considers to be important in that locality. Sampling should be carried out at the same time as sampling for basic parameters.

(iii) Supplies to food production undertakings which operate for 6 months or less should be sampled at half the prescribed frequency.

(iv) In addition, 2 coliform samples, only one of which can be a sample required by the table, should be taken within the first 2 months of the Regulations coming into effect in order to form a view of the microbiological quality of the supply.

TABLE VI: PROPOSED MAXIMUM CHARGES FOR SAMPLING AND ANALYSIS

Class of supply	Parameters for which analysis is to be undertaken	Proposed maximum charge (£)
A1 and B2	category (i)	20
	category (ii)	40
	category (iii)	270
	category (iv)	350
	category (v)	20
	All parameters	700
C,D,E,3,4 and 5	Total and faecal coliforms	20
	Nine basic parameters	40
	Other parameters (where likely to be important in the locality)	
	category (vi)	
	Odour (quantitive) Taste (quantitive) Temperature Nitrite Ammonium Iron Aluminium Manganese Colour	30 (for any or all parameters in category)
	category (vii)	
	Trihalomethanes Tetrachloromethane Trichloroethene Tetrachloroethene	50 (for any or all parameters in category)
	category (viii)	
	Copper Zinc	15 (for any or all parameters in category)
	category (ix)	
	Polycyclic aromatic hydrocarbons	50 (for any or all parameters in category)
	category (x)	
	Choride Sulphate Calcium Magnesium Sodium Potassium Dry residues Oxidizability	40 (for any or all parameters in category)

category (xi)		
Total organic carbon		20
category (xii)		
Boron		40
category (xiii)		
Surfactants		40
category (xiv)		
Phosphorus	)	80 (for any or all parameters
Cyanide	)	in category)
category (xv)		
Fluoride	)	20 (for any or all parameters
Cadmium	)	in category)
Total hardness	)	
Alkalinity	)	
category (xvi)		
Barium	)	100 (for any or all parameters
Silver	)	in category)
Arsenic	)	
Chromium	)	
Mercury	)	
Nickel	)	
Nickel	)	
Antimony	)	
Selenium	)	
category (xvii)		
Residual disinfectant	)	15 (for any or all parameters
Colony counts	)	in category)

ANNEX

PRIVATE WATER SUPPLIES

Draft Circular to Local Authorities

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1. INTRODUCTION

1.1 The purpose of this Circular is to provide guidance to local authorities on their duties to sample and analyse private water supplies under the Private Water Supplies Regulations 1991 (SI) and the use of their powers to secure improvements to private supplies under the Water Act 1989. The guidance supersedes that contained in Circular 25/84 (DOE), 51/84 (WO), which is hereby cancelled. It also supercedes the guidance contained in paragraphs 13–20 of Circular 20/89 (DOE), 1/89 (MAFF) and 47/89 (WO). The Regulations and guidance have been evolved from the provisions of the 1984 Circular and incorporate amendments that have been shown to be necessary in the light of experience.

The EC Drinking Water Directive

1.2 The Council of the European Communities' 1980 Directive relating to the Quality of Water Intended for Human Consumption (80/778/EEC) lays down standards for the quality of water intended for drinking or for use in food and drink manufacture. The UK initially implemented the Directive by administrative means within the existing statutory framework. Circular 25/84 (DOE), 52/84 (WO) explained how local authorities should administer the Directive in relation to private supplies. The Water Act 1989 and the Water Supply (Water Quality) Regulations 1989 (SI 1147) now provide a statutory basis for the Directive and, in combination with the further Regulations which have now been made, fully implement the Directive's provisions in respect of water for human consumption from public and private supplies.

The Water Act 1989

1.3 Section 56(1) of the Water Act 1989 places a general duty on local authorities to keep themselves informed about the wholesomeness and sufficiency of private supplies in their area. The Water Supply (Water Quality) Regulations 1989 ("the Water Quality Regulations") lay down standards of wholesomeness for water from public and private supplies. The Private Water Supplies Regulations set in place the regulatory framework necessary to enable local authorities to monitor the compliance of private supplies with the standards set in the Water Quality Regulations. In particular, they prescribe the parameters for which local authorities are required to sample private supplies and the frequency with which sampling is to be carried out. Section 59 of the Act gives a power of entry to local authorities to enable them to sample water supplies. Where a local authority is satisfied on the basis of the information obtained from its sampling programme that a private supply is not wholesome or sufficient, and that relaxation of a standard would not be appropriate, it may serve a notice under section 57 of the Act requiring improvement of that supply or connection to a public supply. Such a notice may specify the steps to be taken to improve the supply, who is responsible for taking them, and the timescale for improvement. Procedural arrangements are set out in section 57, and section 58 specifies a procedure for confirmation of the notice by the Secretary of State where representations or objections have been received by the authority. Section 164 contains additional powers for local authorities where they carry out work themselves.

1.4 Private supplies are very varied in their history and nature, and section 57 is designed to enable local authorities to tailor their actions to the circumstances of the owners and users of particular supplies. Local authorities are required by the Direction made by the Secretaries of State on 25 August 1989 under section 56(4) of the Act to make themselves aware of the exact terms of existing licences or agreements and have regard to them in determining the content of any notice served under section 57. The text of the Direction is set out in Appendix I to this Circular. Section 59 of the Act enables local authorities to obtain information relating to their functions in sections 56–58 and the Private Water Supplies Regulations provide more specifically for local authorities to be able to obtain relevant information including details about licences and agreements from any person with an interest in a private supply.

1.5 Sources used for bottling water, and the bottling plants themselves, are included in the definition of a private supply in section 66 of the Act. Bottled water for sale which is not covered by the Natural Mineral Water Regulations 1985 (SI 71) will shortly be covered by Regulations being prepared by the Ministry of Agriculture, Fisheries and Food under the Food Safety Act 1990.

2 REGISTER AND CLASSIFICATION OF PRIVATE SUPPLIES

2.1 Local authorities are required by the Private Water Supplies Regulations to identify the private supplies within their areas and to classify each supply in one of the nine classes specified in the Regulations. The classes are:

(i) All Supplies

Class	Maximum number of people served by the supply or consuming the final food product on any one day	Volume of water distributed by or used from supply m^3/day
A1	> 5,000 people	> 1,000
B2	501 - 5,000 people	101-1,000

(ii) Domestic Supplies

Class	Maximum number of people served by supply on any one day	Volume of water distributed by or used from supply m^3/day
C	101 - 500 people	21-100
D	25 - 100 people	5-20
E	< 25 people (except for supplies in class F)	<5
F	those residing in a single domestic property	

(iii) Supplies for Food Production

Class	Maximum number of people consuming the final food product or served by the supply on any one day	Volume of water distributed by or used from supply m^3/day
3	101 - 500 people	21-100
4	10 - 100 people	5-20
5	< 10 people	< 5

2.2 The classification is generally determined on the basis of the greater of the number of persons or the volume of water involved. In the case of supplies for domestic purposes, the number of persons involved should be determined by assessing the maximum number of persons served by the supply for their domestic purposes on any one day (during the previous calendar year). Supplies for purely domestic purposes to commercial and industrial premises should be classified according to the maximum number of people working and/or accommodated on the premises in any one day. The volume of water involved should be determined by assessing the volume of water distributed or used from a supply (as a daily average over the previous calendar year).

2.3 In the case of supplies to premises used for commercial food production (the manufacturing, processing, preserving, preparing or marketing of food or drink for sale), the classification should be determined on the basis of the maximum number of people consuming the final food product on any one day during the previous calendar year or the volume of water used in the food process, whichever corresponds to the lower numbered class. Supplies to hotels, restaurants and other establishments, including commercial and industrial premises, preparing food or drink for sale for consumption on or off the premises will be classified similarly. So too would supplies to hospitals, other residential establishments and staff canteens whether free or otherwise and supplies serving campsites, holiday villages and other establishments, including properties used for holiday lettings, with changing populations. Supplies used for bottling also fall within this criterion and their classification would be determined in accordance with the average volume of water used each year in the bottling process.

2.4 The population criterion for the classification of multi–purpose supplies would be determined by adding together:

(a) the population served by the supply for domestic purposes;

(b) the number of people consuming the final food product in any one day from food production undertakings served by the supply and;

(c) the number of people working and/or accommodated in any one day on premises with changing populations served by the supply.

A multi–purpose supply will be classified either according to this criterion or according to the total volume of water distributed by or used from the supply, whichever corresponds to the lower numbered class. Multi–purpose supplies which serve domestic properties as well as food production undertakings and/or premises with changing populations should be classified as supplies for food production.

2.5 In the light of a recent judgement by the European Court (Case C–42/89 of 5 July 1990) it is clear that supplies serving single properties for purely domestic purposes are not covered by the EC Drinking Water Directive. The Court determined that water drawn by private natural persons for their own household use is outside the scope of the Directive. Supplies which fall into this category should be allocated to class F. This would include all supplies drawn by a single domestic property whether or not the supply is owned by the user or drawn from a source within the boundary of the property.

2.6 Most local authorities are already aware of the numbers and types of private supplies within their areas. Local authorities which do not have sufficient information about the private supplies in their area should carry out a survey in order to collect the data required.

2.7 The Regulations provide for local authorities to be able to obtain information from any person with an interest in a private supply about the terms of any licence or agreement in respect of the supply, the ownership and origin of the supply, the volume of water supplied by the supply, the use to which the water is put, the premises and people supplied, the nature of the supply, any treatment provided for the supply and any charges made for the supply. Where local authorities have difficulty in obtaining information, powers are available in section 59 of the Water Act 1989 which enable them to serve a notice on a person requiring them to provide the information. The person on whom the notice is served is guilty of an offence if he fails to provide the information.

2.8 This information will assist local authorities in determining their sampling programmes and will help in establishing and maintaining the register of private supplies within their areas required by Regulation .... This register which should be made available to the public on request will form the database for all information on the quality and number of private water supplies in the authority's area and is required by Regulation .... to be regularly updated. Local authorities will need to take account of the information and security requirements of the Data Protection Act 1984 when compiling this register.

2.9 All local authorities are asked to notify either the Secretary of State for the Environment for those local authorities in England or the Secretary of State for Wales for those local authorities in Wales of the number of private supplies in each of the nine classes within their areas by 31 December 1991.

3. MONITORING PROGRAMMES

3.1 Local authorities are required by the Regulations to carry out monitoring programmes for each class of private supply serving premises in their area. The Regulations specify the parameters to be monitored and the sampling frequency for each class of supply. A private supply may serve premises situated in more than one local authority area. Each local authority whose area contains premises served by a supply has a duty under section 56 of the Water Act 1989 to keep themselves informed of the wholesomeness and sufficiency of that private supply. However, in order to avoid duplication of effort, the local authority in whose area most premises supplied by the supply are situated (the responsible authority) should take the lead in drawing up and implementing the sampling programme for that supply. In so doing the responsible authority must consult and obtain the agreement of the other local authorities with an interest in the supply to the programme proposed. The local authorities involved may agree that each should carry out the sampling and analysis of the supply in its own area on behalf of the responsible authority or they may consent to the responsible authority undertaking all sampling and analysis of the supply and arrange to receive the results of analysis of samples of the supply taken in their area in order to fulfil their duty under section 56.

Class A1 and B2 supplies

3.2 Local authorities are required to sample supplies in class A1 and B2 for all the parameters of the Water Quality Regulations. They are listed in Table II to the Private Water Supplies Regulations, which is reproduced at Appendix 2 to this circular. The table specifies the frequency at which a local authority is required to take samples of water from private supplies in its area. Column (5) specifies the standard rate of sampling and columns (4) and (6) the reduced and increased rates respectively. A local authority should sample at the standard rate and move to the reduced or increased rates of sampling in the circumstances specified in the footnote to the table.

3.3 Class B2 supplies used for food production are required initially to be sampled more frequently for those parameters in category (v). A local authority is required to carry out these particular analyses twice a month, (ie at the increased rate) until it is satisfied, on the basis of the analyses carried out, that a particular supply consistently complies with the standards set for these parameters in the Water Quality Regulations. At that point the local authority is able to reduce the number of samples taken and analysed for these parameters to 12 per year.

3.4 It is an offence under the Food Safety Act 1990 to sell food which fails to meet food safety standards. A person using water in a food process which does not comply with the standards for health related parameters would be liable to prosecution. In the case of water from a public supply a person might be able to rely on the "due-diligence" defence if it were judged reasonable for him to assume that the water met the required standards. This would not apply in the case of water from private supplies. In order to show due diligence a person using water from a private supply would need to show that he had taken reasonable steps to satisfy himself that the quality of the water met the necessary standards. The sampling carried out by local authorities under the proposed Private Water Supplies Regulations is, particularly in the case of a food process using considerable quantities of water, likely to be insufficient on its own to demonstrate this. A person using a private supply for food production purposes would probably need to carry out his own sampling to supplement that carried out by a local authority in order to demonstrate due diligence. Local authorities should advise food producers, when carrying out sampling under the Regulations and when notifying them of the results of sampling, that they should consider the need for additional sampling in order to satisfy themselves of the quality of the supply.

Supplies serving 500 people or less

3.5 Local authorities are required to sample smaller supplies (apart from those in class F serving a single property) regularly for nine basic parameters and/or the two coliform parameters. In addition, local authorities should sample most supplies for any of the 44 other parameters of the Water Quality Regulations which they consider to be important to the locality of the particular supply. The two coliform parameters, the nine basic parameters and the other parameters are listed in Table III to the Private Water Supplies Regulations, which is reproduced at Appendix 3 to this circular. Local authorities are also required to undertake a survey of private supplies in these classes in their areas for pesticides and related products in order to obtain an overall picture of the extent to which pesticides are present in such supplies. In determining the number of samples to be taken and which pesticides to analyse for, local authorities should take account of the likely risk of particular pesticides being present in the area concerned. In considering this, local authorities should assess, as far as practicable, which pesticides are used in significant amounts in the area and, on the basis of the properties and method of use of these pesticides and local catchment knowledge, whether any of these pesticides is likely to reach a water source. (For further information see paragraph 3.33).

Domestic supplies in classes C, D, E and F

3.6 The sampling frequencies for the smaller supplies used solely for domestic use are shown in Table IV to the Private Water Supplies Regulations, which is reproduced at Appendix 4 to this circular. For class C supplies a local authority is required to take samples and analyse them once a year for total and faecal coliforms and separately once a year for the basic parameters and any of the other parameters listed in Table III to the Regulations (Appendix 3) which it considers to be important to the locality of the particular supply.

3.7 Class D supplies are required to be sampled once a year for the basic parameters and any of the other parameters which a local authority considers to be important to the locality of the particular supply.

3.8 A local authority is required to sample and analyse all class E supplies within three years of the sampling provisions of the Private Water Supplies Regulations coming into effect (that is, by 30 September 1994) for the basic parameters listed in Table III (Appendix 3) and for any of the other parameters listed there which it considers to be important to the locality of the particular supply. During this period a local authority is required to sample and analyse at least one-third of its Class E supplies each year. A local authority is not required to sample and analyse a class E supply by 30 September 1994 if it has sampled and analysed the same supply for all the relevant parameters between 1 October 1989 and 30 September 1991 and has no reason to suppose that the quality of that supply has materially changed. As from 1 October 1994, a local authority is required to sample and analyse its class E supplies every 5 years, and to sample and analyse at least one-fifth of such supplies each year. Those local authorities with few private supplies in class C, D and E may wish to increase the frequency of sampling class E supplies to cover all supplies every year. A local authority following this course would only be able to recover the costs of sampling carried out at the frequencies specified in the Regulations.

3.9 Paragraph 2.5 explains that those supplies serving single properties which fall outside the scope of the EC Directive should be allocated to class E. It is not considered necessary therefore for supplies to single households to be monitored routinely. Local authorities are however required by section 56(1) of the Water Act 1989 to keep themselves informed about the wholesomeness and sufficiency of every private supply in their area. Local authorities should therefore monitor these supplies at their discretion with a view to ensuring that the water does not pose a threat to public health.

Supplies for food production in classes 3, 4 and 5

3.10 The EC Drinking Water Directive requires that water intended for food manufacturing must be monitored at least once a year. In the light of this, and the potentially greater risk to public health from unwholesome water used in food production, smaller supplies used in whole or in part for food production purposes, or serving premises with changing populations, should be sampled more frequently than the smaller supplies used solely for domestic purposes. Table V to the Regulations (Appendix 5) shows the frequency of sampling proposed for the smaller supplies used for food production purposes.

3.11 Supplies in class 3 should be sampled 5 times during the first year for total and faecal coliforms. 2 of these samples should be taken within the first two months of the sampling provisions of the Private Water Supplies Regulations coming into effect (that is, by 1 December 1991) in order to establish the microbiological quality of the supply. These supplies should also be sampled separately during the first year on two occasions for the basic parameters plus any of the other parameters which the local authority considers to be important to the locality of the particular supply. Thereafter, the supplies should be sampled 4 times a year for coliforms and separately twice a year for the basic parameters plus any of the other parameters listed in Table III to the Regulations (Appendix 3) which the local authority considers to be important to the locality of the particular supply. Class 3 supplies to food production premises which operate for 6 months or less within the year should be sampled at half the prescribed frequencies, (ie 2 times a year for coliforms and separately once a year for the basic parameters plus any of the other parameters considered important locally). In the first year, an additional coliform sample plus one of the prescribed coliform samples should be taken within the first two months of the supply being used for food production purposes in order to estabish the microbiological quality of the supply.

3.12 Class 4 supplies should be sampled twice a year for the basic parameters and once a year for any of the other parameters which the local authority considers to be important to the locality of the particular supply. Class 4 supplies to food production premises which operate for less than 6 months of the year should be sampled once a year for the basic parameters plus any of the other parameters which the local authority considers to be important to the locality of the particular supply.

3.13 Class 5 supplies should be sampled once a year for the coliforms parameters.

3.14 The requirements of the Food Safety Act, set out in paragraph 3.4, are also relevant to food production undertakings using water from smaller supplies.

New Supplies

3.15 Private supplies being brought into use for the first time or supplies not used for 12 months or more should be sampled before the water is put into supply. Thereafter the sampling arrangements should follow those prescribed for the class into which the supply falls. Local authorities should have regard to section 25 of the Building Act 1984 whereby they must be satisfied that the plans of a new house provide for a supply of wholesome water sufficient for domestic purposes. In the case of new supplies, or supplies not used for 12 months or more, brought into use without the knowledge of the local authority, sampling should commence as soon as the local authority becomes aware of the supply.

Private Water Supplies on Dairy Farms

3.16 MAFF and WOAD will continue to be responsible for the inspection, testing and approval of private water supplies used for dairying purposes as laid down in the Milk and Dairies Regulations. MAFF and WOAD determine the suitability of supplies largely on the application of microbiological criteria. All supplies treated by mechanical plant are checked annually. Regular checks are made to ensure that facilities for hand chlorination are available where necessary. Complete field inspections of the source and distribution system are also made regularly. Where the same private water supply is used for both dairy purposes as well as domestic or food production purposes, the local authority should sample at the required frequency unless they can be satisfied that the results of a sample taken by MAFF/WOAD are sufficient for their purposes. It is hoped that there will be an exchange of information between MAFF and WOAD and the local authority which will help both parties to avoid duplication of work.

Sampling Procedure

3.17 Each local authority should draw up an annual sampling programme which enables them to take and analyse the number of samples specified in the earlier paragraphs of this section. For those smaller supplies for which only one sample is required to be taken in a year, or over a number of years, the local authority should ensure, as far as possible, that the sample is taken at a time of year when the water quality will be reasonably representative of the overall quality of the supply. For those supplies for which more than one sample is required during a year, the samples should be taken at regular intervals during the year. Similarly the four samples required for class A1 and B2 supplies under the standard sampling regime for which a full analysis is required, should be taken at regular intervals during the year. Sampling of supplies used by food production undertakings and in holiday accommodation with a seasonal business should be carried out during the period when the supplies are in regular use. Samples for pesticides and related products taken on an area survey basis for supplies serving 500 people or less, should be taken at properties selected at random at regular intervals during the year.

3.18 A local authority is required to take samples of water at consumers' taps. For supplies serving more than one property, the property from which the sample from the supply is to be taken should be selected at random. A local authority should notify the owner and/or occupier of the property concerned (property owner) and, where different, the person responsible for the supply (responsible person) in advance of the intention to take a sample. The notification should explain the requirements on local authorities to sample private supplies and arrangements for charging for the analysis of the sample.

3.19 When taking a sample from a property, an overall assessment should be made of the water taking account of its general appearance including any colour associated with the water and the presence of any particles or other matter. The consumer's assessment of the taste and odour should also be recorded. Care should be taken when analysing a sample, particularly from smaller supplies, for qualitative taste. If there is any reason to suspect that the water may pose a hazard to health, the analysis should not be carried out.

3.20 After analysing a sample a local authority is under a duty to notify the property owner and, where different, the responsible person of the result of the analysis. Appendix 6 sets out the minimum information a local authority should provide. A local authority can provide further information if it considers that it would be helpful. The appropriate person or persons should be informed of the charge for the service and, if the local authority intend to recover costs after each sampling exercise, asked for payment. (The charges that local authorities are able to recover for this service are set out in section 4). If the analysis shows that the supply complies with the standards of the Water Quality Regulations, the local authority would normally only need to inform the property owner and the responsible person that the analysis of the sample showed that the supply was satisfactory. In cases where the analysis shows that the supply does not comply with the standards of these Regulations, the property owner and the responsible person should be given the full results of the analysis. They should be told either that no immediate remedial action is considered necessary or that the result of the analysis suggests that the quality of water is unsatisfactory and that remedial action is likely to be required. (Section 6 deals with action to improve unsatisfactory supplies).

3.21 Where no immediate remedial action is necessary the local authority should continue to monitor at the required rate. For supplies in classes A1 and B2 sampling for those parameters which failed to meet the required standard should be at the appropriate increased rate specified in Table II at Appendix 2 for the remainder of that year and throughout the following year.

3.22 In cases where the analysis suggests that remedial action may be necessary, the local authority should consider whether sufficient information is available to them in order to determine the appropriate remedial action. In cases where the local authority is satisfied that the analysis results are representative of the supply they may decide to specify immediately the steps to be taken to improve the supply by serving a notice under section 57 of the Water Act 1989 (section 6 to this guidance explains the procedures involved).

3.23 Where the local authority is not satisfied that the evidence from one sample is sufficient to judge whether remedial action is necessary, they should await the outcome of the results of further sampling. If the analysis of the initial sample suggests that remedial action may need to be taken in advance of the time of the next routine sample, the local authority should take and analyse for appropriate parameters, at its own expense, a further sample from the supply concerned. For supplies serving more than one property, this repeat sample should be taken from a different property served by the supply. In the case of supplies serving a considerable number of properties local authorities should consider taking a number of repeat samples from a selection of properties served by the supply in order to obtain a representative picture of the quality of water. In each case the local authority should notify the property owners concerned and the responsible person of their intention to re-sample the supply and the reasons for their action. The local authority is not able to charge for this service (see Section 4) and should explain to the property owners and responsible person that there will be no charge for repeat sampling.

3.24 Property owners (both those affected by the initial sampling and by the repeat sampling) and the responsible person should be informed of the results of the analysis of the repeat samples and of the action that the local authority intends to take. In cases where the analysis of the repeat sample does not confirm the results of the original sample, the local authority should continue to sample the supply at the required frequencies. For supplies in classes A1 and B2, sampling for those parameters which failed to meet the required standard should be at the appropriate increased rate specified in section 2 for the remainder of the present year and throughout the following year.

Sampling carried out on behalf of local authorities

3.25 A local authority is able to accept samples collected by others and the results of analysis carried out by others in order to satisfy the requirements placed on it by the Regulations. Instances where this might arise would include supplies serving large food processing establishments, including breweries, large institutions and large numbers of domestic users. The local authority is required to authorise the person or persons concerned to collect and/or analyse or cause to be collected and/or analysed the required samples on its behalf. Before doing so it must be satisfied that the requirements of Regulation 33 of the Water Quality Regulations (see paragraph 3.26) about the collection and analysis of samples will be complied with by the person concerned. The local authority should ensure that samples are taken and analysed at the required time and that the results of analysis are sent to the local authority as soon as they are available. The person so authorised can be the owner or user of the supply.

Collection and Analysis of Samples

3.26 Regulation 33(2) of the Water Supply (Water Quality) Regulations 1989 applies the requirements of Regulation 21 to local authorities in respect of the collection and analysis of samples. Local authorities are required to secure, so far as is reasonably practicable that in taking, handling, transporting, storing and analysing any samples or causing any samples to be taken, handled, transported, stored and analysed appropriate steps are taken to ensure that:

(a) the time of sampling is representative of the quality of water available during the year to the consumer;

(b) the sample is not contaminated;

(c) the sample is kept so that there is no material alteration of the concentration or value of the parameters concerned;

(d) the sample is analysed as soon as practicable by or under the supervision of a competent person using suitable equipment and analytical systems or methods capable of measuring within acceptable limits of deviation and detection; and

(e) the sample is analysed at a laboratory which has a system of analytical quality control that is subjected to checking from time to time by a person approved by the Secretary of State.

3.27 General information on sampling procedures is given in the publication "General Principles of Sampling and Accuracy of Analytical Results" (HMSO, 1980) and "General Principles of Sampling" (HMSO, 1990). Detailed information for individual parameters or groups of parameters is given in the individual booklets in the series "Methods for the Examination of Water and Associated Materials" published by the Standing Committee of Analysts (HMSO, 1976 onwards), including Report 71, The Bacteriological Examination of Drinking Water Supplies 1982 (HMSO, 1982) now being updated, which deals exclusively with microbiological parameters. Summary information on sampling procedures is given in the following paragraphs. However, whenever the local authority or the laboratory concerned is in doubt about the correct sampling procedures it should consult the appropriate publication prior to organising and taking samples.

3.28 Local authorities are required by the Regulations to carry out sampling programmes for each class of supply. To sample for the nine basic parameters listed in Appendix 3 could require four different sampling bottles and to sample for all the parameters of the Water Quality Regulations listed in Appendix 2 could require up to 12 different sampling bottles depending on the methods of analysis to be used.

3.29 When preparing sampling programmes local authorities or the laboratories concerned need to consider:

(a) the types of bottles and their closures;

(b) the cleaning procedure for each type of bottle and closure;

(c) where appropriate, the amount and type of preservative to be added either prior to or after sample collection to ensure that there is no material change in water quality before analysis;

(d) the type of sample to be collected (eg first draw, flushed etc) and the sequence of collecting samples for different parameters or groups of parameters;

(e) the conditions of storage and transport (eg temperature of samples); and

(f) the maximum time which can elapse before analysis must commence.

3.30 Chapter 5 of the SCA publication (December 1990) General Principles of Sampling Water and Associated Materials (2nd Edition) with Supplements 1990 gives guidance for each parameter or group of parameters on the type of bottle and, where appropriate, the preservative to be used and any relevant comments. For the full analysis of the nine basic parameters the following samples will be required:

(a) total and faecal coliforms – a sterile bottle (the sample being divided for separate examination for total and faecal coliforms) or separate sterile bottles (one for total and one for faecal coliforms) provided by the laboratory performing the examination and used exclusively for microbiological samples and which contain sufficient freshly prepared sodium thiosulphate to neutralise any chlorine in the water to be sampled. The bottles should be of glass or plastic fitted with ground glass stoppers or screw caps;

(b) Hydrogen ion, conductivity and nitrate and qualitative odour and taste – borosilicate glass or plastic bottles without preservative. Bottles should be completely full leaving no air space; and

(c) lead – plastic bottle containing 2 ml of 5 M hydrochloric acid per litre, preferably added prior to collection of sample.

3.31 When a sample is to be taken for analysis for lead (or copper and zinc), the samples should consist of the first 1 litre of water which issues from the consumers tap (random day time sample). Otherwise the samples for microbiological examination should be collected first and samples for other parameters should follow. In general samples should be analysed as soon as possible after collection. It should be noted that this is particularly important for certain parameters whose concentration could change if there is a delay in analysis.

Microbiological parameters

3.32 Some special precautions are necessary when collecting and transporting samples for microbiological parameters as follows:

(a) scrupulous care should always be taken to avoid accidental contamination of the sample during collection;

(b) sample taps should be cleaned and disinfected and the water run to waste for not less than 2 minutes before taking the sample; information on cleaning and disinfection procedures is given in Report 71, The Bacteriological Examination of Drinking Water Supplies 1982;

(c) samples should be kept cool using ice packs or equivalent when necessary and transported in the dark in sealed insulated boxes which should be regularly cleaned and disinfected; and

(d) examination should be undertaken as soon as possible after collection with every attempt being made to start the examination within 6 hours. In exceptional cases, where logistics do not allow this, samples may be examined up to 24 hours after collection provided they are kept cool (2–10°C) and in the dark.

The procedure at (b), provided it is carried out carefully, should minimise the chance of contamination from the tap and should therefore provide a sample which is representative of the water being supplied to the property. If a local authority is satisfied that the water supplied to a property meets the standards for microbiological parameters but suspects that the water issuing from the tap is being contaminated microbiologically as a result of the hygienic state of the tap and its associated fittings it should collect a sample for microbiological examination without cleaning and disinfecting the tap and running water to waste. If analysis of such a sample shows the presence of coliforms the local authority should advise the occupants of the property of the need for attention to the hygienic condition of the tap.

Pesticides

3.33 There are a large number of pesticides and related products (ie all fungicides, herbicides and insecticides) in use. It is not practicable to analyse samples for all pesticides. Local authorities have to select a limited number of pesticides for analysis on the basis of the likelihood of those pesticides reaching water sources within their area. In deciding which pesticides to analyse for local authorities should:

(a) assess as far as is practicable which pesticides are used in significant amounts within their area or, if possible, the catchment area of the source of the supply; and

(b) assess as far as is practicable on the basis of the properties and method of use of these pesticides, and local knowledge, whether any of these pesticides are likely to reach water sources within their area.

Information on pesticide use and properties is given in Water Policy Letter 18/1989 addressed to Water Companies which is reproduced at pages 92–105 of HMSO publication Guidance on Safeguarding the Quality of Public Water Supplies (ISBN 0 11 752262 7).

3.34 For supplies in classes C–F and 3–5 each local authority is required to carry out a survey to determine whether pesticides and related products are present in a representative selection of those supplies. For this purpose supplies should be divided into two categories – those derived from surface waters and springs and those derived from wells and boreholes. Sufficient samples should be taken from supplies in each category each year and analysed for pesticides in order to provide the local authority with an overall picture of the extent to which pesticides are found in these supplies. Different supplies should be selected for sampling each year.

3.35 Where pesticide concentrations are found to be in breach of the standard set in the Water Quality Regulations or the concentration approaches or exceeds the advisory value as shown in the appendix to Water

Policy Letter 18/1989, local authorities should notify the National Rivers Authority so that the Authority can take appropriate action to safeguard water resources. At the same time local authorities should consider whether their own use of pesticides may be contributing to the levels found in water supplies.

Analysis

3.36 Regulation 21(2)(d)(iii), as applied by Regulation 33(2), to the Water Quality Regulations specifies that the analytical systems and methods used should be capable of establishing within acceptable limits of deviation and detection whether the sample contains concentrations or values which contravene the standards. General specifications of acceptable limits of deviation and detection of individual analytical results are given in Chapter 4 of HMSO publication Guidance on Safeguarding the Quality of Public Water Supplies. This guidance, together with that in Chapter 5 (Analytical Methods) and Chapter 6 (Analytical Quality Control), applies equally to laboratories analysing samples taken from private supplies.

The Drinking Water Inspectorate

3.37 The Drinking Water Inspectorate established by the Secretary of State under section 60 of the Water Act 1989 will provide technical and scientific advice to Ministers about private supplies. The Inspectorate will be responsible for checking or arranging to check that local authorities' sampling and analytical arrangements, including whether the laboratories used have an adequate system of analytical quality control, are in accordance with Regulation 21 of the Water Quality Regulations. Guidance to local authorities on private water supplies will be available from the Inspectorate in the form of a technical booklet to be prepared.

4. CHARGES FOR SAMPLING AND ANALYSIS

4.1 The Regulations specify that local authorities may recover their reasonable costs from relevant persons for carrying out sampling and analysis of private water supplies. Local authorities should determine for each supply which one, or more, of the prescribed relevant persons will be required to pay the charges for sampling and analysis. The relevant persons in respect of a private supply are:

(a) any persons mentioned in any agreement, contract, licence etc;

(b) the owners and occupiers of the premises supplied;

(c) the owners and occupiers of the premises where the source is situated; and

(d) any persons who exercise powers of management or control over the source or the supply or the premises concerned.

4.2 It is for local authorities to decide how to apportion the costs of sampling and analysis between the relevant persons. Local authorities should always have regard to the exact terms of existing licences or agreements when considering who should be required to pay for the costs of sampling and analysis. Where there is insufficient information to enable the local authority to determine the relevant person in respect of a particular supply, the local authority should presume that, except for supplies used solely for food production undertakings, the person owning the land from which the supply emanates is responsible for meeting any costs associated with sampling the supply. In the case of supplies used solely for food production undertakings, the relevant person will be the owner of the property to which the supply is given.

4.3 Maximum charges are specified in Table VI to the Regulations which is reproduced at Appendix 7. For class A1 and B2 supplies, local authorities are able to charge up to a maximum of £700 for each full analysis for all the parameters of the Water Quality Regulations. Individual maximum charges are specified for analysis for each category of parameters. For smaller supplies, local authorities are able to charge up to a maximum of £20 for each analysis for total and faecal coliforms and £40 for each analysis of the nine basic parameters. Separate maximum charges are specified for 12 categories of other parameters which local authorities are required to analyse where they are likely to be important in the locality concerned.

4.4 Local authorities may also recover an amount of up to £50 for each visit made to a property to take a sample. This charge is to cover the time and effort involved in collecting each sample. This includes time spent in preparation for the visit, time at the site collecting the sample and inspecting the source and distribution system, travelling to and from the inspection and follow up and advisory work. This charge is in addition to the maximum charges specified in the preceding paragraphs for analysing samples.

4.5 The charges apply to all sampling carried out under the requirements of the Regulations including, in the case of class A1 and B2 supplies, sampling at increased or reduced frequencies. The charges also apply to sampling carried out for new supplies or supplies not used for 12 months or more and being brought back into use.

4.6 The charges specified are maximum charges and local authorities are expected to recover from relevant persons only the costs that they incur in collecting, taking and analysing samples. In some cases local authorities with large scale sampling requirements will be able to negotiate lower average costs with those organisations undertaking analysis on the basis of the scale of the work involved. The power to recover costs is discretionary. There may be instances where local authorities consider that they should not attempt to recover the costs involved, for instance on economic or social grounds.

4.7 Local authorities are not able to recover the cost of taking and analysing any repeat sample taken for the purposes of confirming an earlier result. Neither are local authorities able to recover the cost of taking and analysing samples taken for the purposes of the area survey for pesticides for smaller supplies. No charge can be made in respect of taking and analysing any sample from a class F supply.

4.8 Local authorities are able to recover the cost of taking and analysing a sample following the completion of remedial works in a supply. The remedial works do not necessarily have to be carried out following the issue of a notice under section 57 of the Water Act 1989.

4.9 It is intended that the Regulations should be amended from time to time in order for these rates of charges to be changed.

4.10 Local authorities will no doubt continue to be asked to sample private supplies, particularly those in class F, by consumers who are concerned about the quality of the water. This service shoud continue to be provided free of charge by local authorities, as it generally is when they sample public supplies at the request of consumers.

5. AUTHORISATIONS UNDER PART III OF WATER QUALITY REGULATIONS

Relaxations under Regulation 8

5.1 Under Regulation 8 of the Water Quality Regulations relaxations of the standards of wholesomeness may be authorised by local authorities for private supplies. The procedures involved and restrictions and conditions associated with relaxations are contained in Regulations 4–7. A local authority may authorise a relaxation if it is satisfied –

(a) that the authorisation is necessary, as an emergency measure, to maintain a supply of water for human consumption;

(b) that the authorisation is called for by reason of exceptional meteorological conditions; or

(c) that the authorisation is called for by reason of the nature and structure of the ground in the area from which the supply emanates.

A local authority is able to authorise a relaxation for a supply only where some or all of the properties served by the supply are in its area. Where only some of the properties served are in its area, a local authority is required by Regulation 8(3) to act jointly, or with the consent of, other authorities in whose areas the remainder of the properties are situated.

5.2 Local authorities are required by Regulation 8(4) of the Water Quality Regulations to consult the Secretary of State before exercising any power in respect of relaxations in relation to a private supply [used solely for food production purposes or] serving more than 500 people. [Local authorities are required to notify the Secretary of State of all relaxations authorised under Regulation 4(1)(a) as emergency measures and relaxations authorised under Regulation 4(1)(b) or (c) for exceptional meteorological conditions or due to the nature and structure of the ground from which the supply emanates in relation to private supplies which serve a population of 5000 or more or supply 1,000 cubic metres or more. This is necessary because relaxations authorised under the Water Quality Regulations constitute derogations under Articles 9 and 10 of the EC Drinking Water Directive. Member States are required to notify the European Commission of certain derogations.]

Note [Sections in square brackets refer to amendments that are proposed to the Water Supply (Water Quality) Regulations 1989.]

5.3 Relaxations under 5.1(a) and (b) above can only be authorised by a local authority in response to a written application from the owner or occupier of the premises where the source of the private supply is situated, any other person who exercises powers of management or control in relation to the source or the owner of any premises served by the supply. Relaxations in these categories must specify the date when the relaxation ceases to have effect. If, after sampling, a local authority considers that a relaxation under paragraph 5.1(a) or (b) above is necessary, they should advise the appropriate person to make a written application.

5.4 Relaxations in the case of emergencies (5.1(a) above) should only be considered in exceptional circumstances when for a limited period it is necessary in order to maintain a supply of water. Relaxations granted in these circumstances must not relax the standards of the Water Quality Regulations so as to give rise to a risk to public health which the local authority's properly appointed medical advisers consider unacceptable.

5.5 Relaxations called for by reason of exceptional meteorological conditions should be needed only infrequently to deal with short term situations due to extremes of weather. Relaxations granted in these circumstances cannot be used to relax the standards for toxic and microbiological parameters (those parameters mentioned in Table B and C and item 7 of Table D to the Water Quality Regulations). Nor can they relax the standards of the Water Quality Regulations so as to give rise to a public health hazard.

5.6 Relaxations under 5.1(c) above in respect of the nature and structure of the ground can be authorised by a local authority whether or not a written application has been made. These relaxations can be permanent or can include a date when they cease to have effect. They cannot be used to relax the standards for toxic and microbiological parameters (those parameters mentioned in Table B and C and item 7 of Table D to the Water Quality Regulations). Nor can they relax the standards of the Water Quality Regulations so as to give rise to a public health hazard.

5.7 In considering the effect on health of proposed relaxations, local authorities should consult their medical advisors on environmental health. Under revised arrangements in England notified to local authorities by the Department of Health in December 1988[a] the post of Medical Officer for Environmental Health has ceased to exist and medical advice is provided to local authorities by the local health authority's Director of Public Health or public health physicians acting on his behalf. Local authorities should also refer to relevant guidelines and assessments produced by the World Health Organisation[b].

[a] (HC(88)64/LAC(88)22: Health Services Management: Health of the Population: Responsibilities of Health Authorities)

[b] (World Health Organisation: Guidelines for Drinking Water Quality. Volumes 1-3. World Health Organisation, Geneva, 1984).

5.8 Local authorities are encouraged to make maximum use of relaxations due to the nature and structure of the ground consistent with public health and aesthetic acceptability. This applies particularly to the smaller private supplies for which permanent relaxations may be appropriate. Local authorities should also consider authorising time limited relaxations for larger supplies in classes A1 and B2 in the interim period while improvement works are carried out. Authorisations should not allow the standards for particular parameters to be relaxed to such an extent that essential disinfection of the water is ineffective.

5.9 The concentrations for a number of parameters are likely to be affected by situations arising from the nature and structure of the ground. Appendix 8 lists those parameters which are present at times in concentrations exceeding the standard in the Water Quality Regulations due to the nature and structure of the ground and which are the most likely to warrant relaxations under this provision. For illustrative purposes it also gives details of the maximum concentrations prescribed for individual parameters in relaxations authorised by the Secretaries of State for public water supplies.

Relaxations under Regulation 8 for supplies used solely for food production purposes

[It is proposed to extend the relaxation provisions in part III of the Water Quality Regulations to provide for relaxations to be authorised for supplies used solely for food production purposes where the water does not affect the fitness for human consumption of the final food product. The guidance given in the following paragraphs reflects the present proposals. It will be incorporated into the previous section of this chapter in the eventual circular, once the Regulations have been amended.]

5.10 Under Regulation 8 of the Water Quality Regulations relaxations of the standards of wholesomeness may be authorised by local authorities for private supplies used solely for food production purposes. A local authority may authorise a relaxation for certain parameters for a particular supply if it is satisfied that the parameters of the Water Quality Regulations with which the supply does not comply and for which a relaxation is to be authorised do not affect the fitness for human consumption of the food stuff in its finished form. Before exercising this power, local authorities are required to consult the Secretary of State.

5.11 In the case of a private supply owned by the food processor who uses the water from the supply, a relaxation can only be authorised by the local authority in response to a written application from the food processor. In the case of a private supply used solely for food production purposes, but not owned by the food producer, a relaxation can be granted by the local authority in response to a written application from the owner or occupier of the premises where the source of the private supply is situated, any other person who exercises powers of management or control in relation to the source or the food processor using the water from the supply. Before authorising a relaxation in response to an application from a person other than the food processor who uses the water, the local authority should consult the food processor concerned. If after sampling, a local authority considers that a relaxation may be appropriate, they should advise the appropriate person to make a written application.

5.12 Conditions may be attached to a relaxation. These conditions would normally state the extent to which the prescribed concentration or value of any parameter is authorised by the relaxation to be contravened.

5.13 In considering whether to authorise a relaxation local authorities will need to consider:

(a) the nature of the food process; and

(b) whether, where the water used is an intrinsic part of the taste of the final product, treatment of the water would alter the taste of the water and hence the taste of the final product.

Private supplies which may be considered suitable for such a relaxation are those used for whisky distillation and brewing. In the case of whisky distillation, for example, the distillation process renders harmless any microbiological organisms in the water whereas disinfection of the water before it is used is likely to alter the taste of the final product.

5.14 Relaxations are to be authorised on a supply by supply basis. Each authorisation will relate only to a particular supply used for a particular food production process.

6. ACTION TO IMPROVE UNWHOLESOME PRIVATE SUPPLIES

Introduction

6.1 Where a local authority is satisfied that a private water supply is not wholesome or sufficient and a relaxation under Regulation 8 of the Water Supply (Water Quality) Regulations 1989 would not be appropriate it may serve a notice under section 57 of the Water Act 1989 requiring improvement of that supply or connection to a public supply. Such a notice must specify the steps to be taken to improve the supply and may also specify who is responsible for the improvement, and the timescale for improvement. In the case of a supply which serves premises situated in more than one local authority area, Section 57(4) states that the power of a local authority to serve a notice may only be exercised with the consent of the other authority involved or where the authorities decide to act jointly. Section 58 of the Act specifies a procedure for confirmation of the notice by the Secretary of State where representations or objections have been received by the local authority. [Guidance on the procedures for dealing with representations or objections received in respect of a notice under section 57 will be included in the final version of the Circular]. Section 164 contains additional powers for local authorities where they carry out the work themselves.

Improvement programmes

6.2 Local authorities should draw up and implement improvement programmes for private supplies which provide for action to be taken by specific dates to improve those supplies which are unwholesome. The work needed to improve supplies will generally be carried out by the relevant person, as defined in paragraph 4.1. above. Although the local authority is able to specify a period within which the work is to be carried out, the speed with which work progresses will not be directly within the local authority's control. Local authorities should therefore monitor the progress of remedial action to satisfy themselves that the steps specified in the notice under section 57 are being taken. Where the relevant person fails to take the specified steps, local authorities have powers under section 58 of the Act to take action themselves.

6.3 In determining the appropriate remedial action, local authorities should consider whether the National Rivers Authority should be informed of particular sources of pollution so that they can consider whether wider action is necessary in order to safeguard water resources.

Improvement programmes

6.4 Local authorities should aim to draw up and implement improvement programmes for all unwholesome supplies in accordance with the target dates specified in the table below.

Class of supply	Target date for determining improvement programme	Target date for completion of improvement programme
(i) All supplies		
A1	(	(December 1993^{H}
	(December 1992	(
B2	(	(December 1997$^{\wedge}$
(ii) Domestic supplies		
C	December 1992	December 1994^{H}
D	December 1993	)To be determined by the individual
		)local authority within the context
E	December 1995	)of its overall improvement programmes^{H}
(iii) Supplies for food production		
3	December 1992	December 1994^{H}
4	December 1993	December 1995^{H}
5	December 1995	To be determined by the local authority within the context of its overall improvement programmes^{H}

^{H} = Health related parameters
$^{\wedge}$ = Regular failures of aesthetic parameters

In setting these target dates, account has been taken of the time required, by those local authorities that have not been carrying out regular monitoring of private supplies in their area, to draw up and carry forward a sampling programme to provide the necessary information on water quality. Authorities that already have considerable information on the quality of water from private supplies in their areas should be able to set earlier target dates for determining and completing improvement programmes.

6.5 Local authorities should aim to draw up programmes for unwholesome supplies in classes A1 and B2 by December 1992. These programmes should incorporate target dates for completion of remedial action of no later than December 1993 in respect of failures to meet standards for heath-related parameters. Local authorities should aim for earlier completion of remedial action in respect of failures of microbiological parameters, in particular in supplies used for food production. Target dates of no later than December 1997 should be incorporated for regular failures of aesthetic parameters, which may be the subject of a time-limited relaxation (see Section 5).

6.6 Improvement programmes should be drawn up by December 1992 for all supplies in classes C and 3 which fail to comply with the standards for health-related parameters. These programmes should incorporate target dates for completion of remedial action of no later than December 1994. It is for local authorities to determine whether any remedial action is necessary in respect of regular failures of aesthetic parameters by classes C and 3 supplies.

6.7 Local authorities should aim to draw up improvement programmes by December 1993 for those supplies in classes D and 4 which fail to comply with the standards for health-related parameters and by December 1995 for those in classes E and 5. The target date for the completion of remedial action in respect of health-related parameters for class 4 supplies should be no later than December 1995. The target dates for completion of remedial action in respect of health-related parameters for class D, E and 5 supplies should be determined by the local authority within the context of its overall improvement programme. It is for the local authority to determine whether any remedial action is necessary in respect of regular failures of aesthetic parameters by supplies in classes C-E and 3-5.

6.8 The programmes should concentrate in the initial stages on securing improvements where they are most needed. There are a number of factors that local authorities will need to take into account in determining priorities within their improvement programmes:

(a) the use that is made of the supply, in particular the extent to which the water is used for food processing purposes;

(b) the number of people served by the supply or consuming food produced using water from the supply;

(c) the parameters in the Water Quality Regulations for which the standards are breached; and

(d) the extent to which the standards are breached.

6.9 The standards for parameters in the Water Quality Regulations 1989 apply equally to those private supplies in class F which fall outside the Directive and local authorities are able to use their powers under the Water Act to secure improvements. In considering their improvement programmes and the use of their powers, local authorities should normally require improvements to be made to those supplies falling outside the Directive only where they judge the quality of water to pose a hazard to the health of those consuming it. In cases where any sampling carried out by the local authority reveals that the water fails to meet certain standards but is not considered to be a hazard to health, local authorities will inform users of the results of analysis. Individual householders will, on the basis of this information, be able to decide for themselves whether to carry out improvements.

Breach of a Standard

6.10 Where a private water supply has been sampled and analysed by a local authority and a breach of a standard set in the Water Quality Regulations has been detected, the local authority should consider whether:

(a) the breach is trivial - taking into account the amount by which the standard is exceeded and the importance of the parameter with respect to health risk and aesthetic quality, and

(b) the breach is likely to recur - taking into account the nature and circumstances of the source, any treatment given, and the nature and condition of the supply system.

6.11 If the breach is not trivial and is likely to recur, the local authority should consider whether a relaxation of the standard under Regulation 8 is appropriate. In normal circumstances a relaxation can only be granted for certain parameters, if the standard is exceeded because of the nature and structure of the ground and there is no public health hazard (see Section 5). In the special circumstances of an emergency (provided there is not an unacceptable public health risk) a relaxation could be granted for any parameter. When exceptional meteorological conditions exist a relaxation may be granted for all parameters except toxic and microbiological ones and provided there is no public health hazard. In determining whether there is an unacceptable public health risk or a public health hazard local authorities should consult their local Director of Public Health. If a relaxation is not appropriate the local authority will need to consider whether to serve a notice under section 57(1) of the Water Act in order to improve the quality of water supply.

Remedial Action

6.12 Local authorities should take steps towards securing remedial action where sampling results show that the quality of water from a private supply is such that urgent remedial action is needed in accordance with the priorities of the improvement programme. Before considering what steps are appropriate to specify in a notice under section 57(1) of the Act, the local authority should satisfy itself that it has all the information it needs in order to determine the appropriate remedial action. It is considered important that, before serving a notice under section 57(1) of the Act, the local authority should identify all the breaches of standards which have occurred and are likely to recur. This will enable the authority to determine the most appropriate steps to be taken to ensure that the supply complies with the Regulations in the long term.

6.13 The local authority should consider whether it is necessary to analyse a repeat sample from the supply in order to confirm the results of the initial sample or analyse for a wider range of parameters. If a repeat sample is considered necessary, the authority will need to consider how extensive the analysis of this repeat sample should be, for example -

(a) repeat analysis only for the parameter which breached the standard;

(b) repeat some or all analyses carried out on original sample;

(c) carry out analysis for additional parameters which might be suspected to be present (eg if the nitrate standard was breached in the original sample, analyse for pesticides in the repeat sample; if the turbidity standard was breached, analyse for those parameters suspected of causing the turbidity).

In deciding what analyses to carry out on any repeat sample the local authority will need to take account of the nature and circumstances of the source, any treatment given, the nature and condition of the supply system, and the likelihood of concentrations of the parameters in question being constant or variable.

6.14 Where the results of the analysis of any repeat sample taken do not confirm that urgent remedial action is needed, the local authority should revert to the prescribed monitoring arrangements described in section 3.

New Supplies

6.15 Local authorities should sample private supplies being brought into use for the first time, or supplies not used for 12 months or more and being brought back into use, before the water is put into supply. In cases where sampling results show that the quality of water does not meet the required standard, the local authority should take steps to secure wherever possible that remedial action is carried out before the supply is brought into use.

Insufficiency of supply

6.16 Where a private water supply has been found to be insufficient for domestic purposes, the local authority should consider whether:

(a) the insufficiency is trivial – taking into account the degree of insufficiency (eg sufficient water for drinking and cooking but on occasion not for regular bathing), the period of insufficiency and the frequency of insufficiency;

(b) the insufficiency is likely to recur – taking into account the nature and circumstances of the source and the supply system and information on past occurrence of insufficiency; and

(c) the insufficiency is likely to cause inadequate hygiene eg insufficient water for sanitary purposes or for regular washing and bathing.

6.17 If the insufficiency is not trivial and is likely to recur, and there is no convenient alternative supply at times of insufficiency, the local authority will need to consider whether to serve a notice under section 57(1) of the Act. Local authorities should also bear in mind the provision of section 55 of the Water Act 1989 (see paragraph 6.24).

Remedial Action

6.18 Where the results of the analysis of the repeat sample confirm that urgent remedial action is needed to a supply, or the local authority considers that action is needed because a supply is insufficient for domestic purposes, the local authority needs to consider the most appropriate means of securing improvements to the quality or sufficiency of water supplied to the properties concerned. A local authority is required to specify in a notice under section 57(1) the steps to be taken to ensure that the water supply is wholesome or sufficient or both, as the case may be.

6.19 Local authorities should have regard to their powers under the Local Government and Housing Act 1989 in cases where the quality of a private supply is such that a property is deemed to be unfit for human habitation. Where a property is found to be unfit, authorities have a statutory duty to consider the most satisfactory course of action for dealing with it. This may take the form of the service of a repair notice requiring works of repair and/or improvement to be carried out or the making of a closing or demolition order or the inclusion of the property in a clearance area. In reaching a decision on the most satisfactory course of action, authorities are required to have regard to guidance issued by the Secretary of State. A statutory code of guidance for dealing with unfit premises and non-statutory guidance on the fitness standard are contained in Circular 6/90 (DOE), 14/90(WO) issued on 28 March 1990.

6.20 In considering remedial action there are a number of options open to local authorities. These options include:

(a) connection to a public supply;

(b) connection to an alternative sufficient and wholesome private supply;

(c) improvements to existing private supply.

A number of aspects will need to feature in the local authority's consideration:

(i) the views of those responsible for the supply and those receiving water from the supply;

(ii) the availability of suitable treatment methods to improve the existing supply. A summary of methods for improvement of private supplies is given at Appendix 9. The Drinking Water Inspectorate is commissioning a study of water treatment for small private supplies including point of use devices, and will produce a guidance booklet in due course;

(iii) the long term cost of retaining the existing supply including the costs of remedial action both immediate capital costs and future running costs, future sampling and analysis costs and the costs of possible further improvement measures;

(iv) the cost of connection to the public water supply, including requisitioning costs, infrastructure charges and future water charges; and

(v) the availability of grant assistance. Grant can be available under the Local Government and Housing Act 1989 towards the costs of works associated with the provision of a wholesome water supply which has caused a local authority to declare a property unfit for human habitation. In addition, the Rural Water Supplies and Sewerage Acts provide for grant towards the costs of connection to a public water supply.

Relevant persons

6.21 Because private supplies have varied histories and circumstances, a local authority intending to serve a notice should have regard to the particular circumstances of the owners and users of the supply in question. Thus the local authority is required by the Direction of 25 August 1989 (reproduced at Appendix 1) to take reasonable steps before serving the notice to ascertain the terms of any agreement, contract, licence etc pertaining to the supply.

6.22 The local authority may serve the notice on one or more relevant persons. In deciding on whom to serve the notice the local authority should consider:

(a) any persons mentioned in any agreement, contract, licence etc;

(b) the owners and occupiers of the premises supplied;

(c) the owners and occupiers of the premises where the source is situated; and

(d) any persons who exercise powers of management or control over the source or the supply or the premises concerned.

Where there is insufficient information to enable the local authority to determine the relevant person in respect of a particular supply, the local authority should presume that, except for supplies used solely for food production undertakings, the person owning the land from which the supply emanates is responsible for meeting any costs associated with the supply and securing any improvements needed to the supply. In the case of supplies used solely for food production undertakings the relevant person will be the owner of the property to which the supply is given.

6.23 Where the relevant person or persons fails to take the specified steps within the specified period the local authority may itself take these steps and recover any expenses reasonably incurred from the relevant person or persons.

Provision of water where piped supplies insufficient or unwholesome

6.24 Local authorities should bear in mind the provisions of section 55 of the Water Act 1989 which enable a local authority to require a water company to provide a supply of water other than in pipes when the insufficiency or unwholesomeness of a private supply for domestic purposes is such as to cause a danger to life or health. A local authority is required to meet the costs involved and is able to recover the amount from the owner or occupier of the premises to which the supply is made.

7. PROVISION OF INFORMATION TO THE SECRETARY OF STATE

7.1 Local authorities are asked to notify the Secretary of State by 31 December 1991 of the number of private supplies in each of the nine classes which serve premises within their areas.

7.2 Thereafter local authorities are asked to submit reports to the Secretary of State on the progress with their improvement programmes for each class of supplies in their areas. The reports should cover:

(a) the number of supplies in each class broken down between:

(i) supplies used in whole or in part for food production with information about the type of food production involved;

(ii) domestic supplies used in whole or in part to supply water to commercial and industrial premises, camp sites, and other establishments with a regularly changing population; and

(iii) all other supplies used for domestic purposes;

(b) for each class of supplies the number of supplies in each category specified in (a) above which the local authority has found since the Regulations came into force not to comply with the standards of the Water Quality Regulations, or relaxations authorised under Regulation 8.

(c) for each class of supplies, the number of supplies in each category specified in (b) above which have been improved so that they comply with the standards or relaxations or are no longer used.

(d) information about the programme which the local authority has drawn up to improve those supplies that do not yet comply with the requirement of the Regulations (by class and category of use) including details of the parameters for which the standards are being breached and the proposed remedial action.

7.3 The first of the reports referred to in paragraph 7.2 should be made by:

(a) 31 December 1992 for supplies in classes A1 and B2

(b) 30 June 1993 for supplies in the remaining classes.

Further reports are asked to be made by 31 December each year for all classes of supplies.

Appendix 6

PRIVATE WATER SUPPLIES REGULATIONS

Results of analysis of sample taken from ....

on ....

The analysis of the sample (the results of which are attached) showed that the supply complies with the required standards of the Water Supply (Water Quality) Regulation 1989.

OR The analysis of the sample (the results of which are attached) showed that the supply does not comply with the required standards of the Water Supply (Water Quality) Regulations 1989 for the following parameters: ....

The Council does not consider that immediate remedial action is necessary because ....
....

OR The Council proposes to authorise a relaxation of the relevant standard(s) under Regulation x [see paras 5.1–9]

OR (in the case of a supply used solely for food production) The Council is prepared to consider an application for a relaxation from the relevant standard(s) under Regulation x [see paras 5.10–14]

OR The Council considers that the result of the analysis suggests that the quality of water is such that remedial action is likely to be required. The local authority will be in touch shortly to arrange to take further samples at no further cost to you.

APPENDIX 8

AUTHORISATIONS UNDER REGULATION 8 OF THE WATER SUPPLY (WATER QUALITY) REGULATIONS 1989 IN RESPECT OF THE NATURE AND STRUCTURE OF THE GROUND

1. The following parameters, which are present at times in concentrations exceeding the standard in the Regulations due to the nature and structure of the ground, are the most likely to warrant the authorisation of relaxations:

   (a) Colour: Relaxations for colour can be considered for water supplies derived from upland surface catchments which often contain substantial peat deposits. These supplies have a characteristic brown colour due to the presence of complex organic compounds of natural origin derived from the water soluble and peptisable components of soil humus and peat. The colour of these waters is variable and often shows a strong seasonal effect with concentrations being greatest in late autumn and winter following a period of heavy rain after hot dry weather has caused natural shrinkage, increased friability and crevicing of the peat. Relaxations for colour can also be considered for water supplies derived from lowland rivers with a seasonal increase in colour following autumn leaf fall.

   (b) Odour and Taste: Relaxations for odour and taste can be considered for water supplies derived from surface water sources. The odours and tastes are generally described as "earthy" or "musty" and are associated with the presence of organic compounds which are produced naturally, largely by algae and micro-organisms in these waters. Relaxations should only be considered if the supply is of satisfactory microbiological quality and no health hazard is perceived.

   (c) Hydrogen ion: Relaxations for hydrogen ion can be considered for water supplies from underground or surface water which is derived from strata with insufficient calcium or magnesium carbonate to neutralise the carbonic acid dissolved into the water from the soil or the humic acids derived from peat. Acid waters are typically found in water from moorland areas or in upland surface waters arising from rocky terrain.

   (d) Sulphate: Relaxations for sulphate can be considered for water supplies derived from certain underground sources for instance in the Keuper Marl, the Permo-Triassic Sandstone and the Lincolnshire Limestone. Parts of these aquifers are rich in deposits of the evaporite gypsum (calcium sulphate - $CaSO_4$) which can dissolve slowly giving rise to slightly elevated sulphate concentrations.

(e) Magnesium: Relaxations for magnesium can be considered for water supplies derived from underground sources in, for example, the Magnesian Limestone and the Triassic Sandstone. The Magnesian Limestone is composed mainly of dolomite ($CaCo_3MgCO_3$) and dolomitic limestone, which dissolve in the aquifer recharge water to give calcium and magnesium bicarbonates. The Triassic Sandstone can contain dolomitic cements and is, in places, underlain with Magnesian Limestone. Thus these sources contain slightly elevated magnesium concentrations.

(f) Sodium: Relaxations for sodium can be considered for water supplies derived from underground sources containing evaporite deposits such as sodium chloride or sodium sulphate. In certain aquifers sodium levels are elevated by ion exchange processes whereby sodium adsorbed onto clay minerals is displaced by calcium or magnesium.

(g) Potassium: Relaxations for potassium can be considered for water supplies derived from underground sources drawing water from either chalk overlying greensand, or from the greensand underlying a cover of ancient river gravels topped by a layer of London clay. The greensand aquifers cover the western extreme of the Strassfurt potash deposits. Water permeates to these aquifers from catchments to the west, up-dip from the sources.

(h) Aluminium: The water supplies for which relaxations for aluminium can be considered would almost always be derived from upland surface catchments which often contain substantial peat deposits. These surface waters are naturally acidic as a result of the low concentration of bicarbonates of calcium or sodium in the peat in the catchment. The acidic surface waters extract dissolved or colloidal aluminium from minerals in the weathered aluminosilicates and feldspar in the soils and rocks of the catchment. There can be considerable seasonal variations in concentrations of aluminium. Aluminium resulting from water treatment processes cannot be subject to a relaxation.

(i) Ammonium: Relaxations for ammonium can be considered for water supplies derived from underground sources in the chalk and the lower greensand. The waters are down-dip from the outcrop and are anoxic in character. Elevated concentrations of ammonium result from the natural release (desorption) of ammonia from clay minerals associated with these aquifers. Ammonia is stabilised by the anoxic conditions in these aquifers. If the ammonia is associated with elevated numbers of faecal bacteria, its presence may be an indicator of pollution by human or animal waste, which would mean that standards could not be relaxed.

(j) Nitrite: A relaxation for nitrite may be considered for supplies containing naturally occurring ammonia in the source water. Nitrite can be formed as a result of the oxidation of the ammonia, within distribution systems by chlorine which has been added as a disinfectant. Relaxations should only be considered if the supply is satisfactory microbiologically.

(k) Iron: Relaxations for iron can be considered for water supplies derived from underground sources in the chalk, greensand and sandstone and from upland surface catchments which usually contain substantial peat deposits:

(i) the waters in the relevant underground sources tend to have low dissolved oxygen concentrations and contain elevated carbonic acid concentrations. Iron is taken into solution in the ferrous state directly as bicarbonate from siderite (ferrous carbonate – $FeCO_3$) and other minerals contained in many of these aquifers.

(ii) upland surface waters abstracted from impounding reservoirs, lakes, streams or springs are often naturally acidic because of the low bicarbonate concentrations. They can dissolve or chelate iron from the soils and minerals in the catchment. There can be considerable seasonal variations in concentrations of iron.

(l) Manganese: Relaxations for manganese can be considered for water supplies from both underground and upland surface water sources:

(i) the underground waters concerned tend to have low dissolved oxygen concentrations and contain elevated carbonic acid concentrations. Manganese is taken into solution in the manganous state directly as bicarbonate from manganese – containing minerals associated with siderite and from other minerals contained in many of these aquifers;

(ii) upland surface waters abstracted from impounding reservoirs, lakes, streams or springs are often naturally acidic because of the low concentrations of bicarbonates. They can dissolve or chelate manganese from the soils and minerals in the catchment. Concentrations of manganese vary considerably seasonally and reservoir overturn or drawdown can contribute additionally to these variations. Some of the naturally derived manganese accumulates in deposits from biological detritus on reservoir and lake floors and when the lower layers of water becomes anoxic, relatively high concentrations of manganese may be abstracted temporarily on drawn down or reservoir/lake overturn.

(m) Turbidity: Relaxations for turbidity can be considered for supplies which also have relaxations for iron, manganese or aluminium. Turbidity may result from the suspension of naturally occurring colloidal or particulate iron, manganese or aluminium. Relaxations for turbidity can also be authorised for certain supplies in which the rainfall leads to the presence of fine clay particles in suspension, provided that the water in question is of satisfactory microbiological quality and no health hazard is perceived.

(n) Hydrogen ion: A relaxation of the pH value for hydrogen ion may be needed in cases when the nature and structure of the ground from which a supply emanates causes a failure of the lower prescribed value. A failure of the lower limit can result from low concentrations of bicarbonates in the strata from which the water is derived. Such naturally acidic waters are usually associated with upland catchments such as moorland areas. Some shallow wells which contain a high proportion of recently recharged rainwater may also exhibit natural acidity. A relaxation of the lower limit should only be considered when the supply meets the standards for plumbing metals.

(o) Conductivity (Dry Residues): Relaxations for conductivity may be necessary for water supplies derived from such strata as carboniferous limestone, coal measures or certain clays where the prescribed value could be exceeded because of the high dissolved ionic concentration.

(p) Calcium: Very hard waters derived for example from limestone or chalk strata may exceed the limit for calcium. When considering relaxations for calcium it is necessary to take account of the undesirable effects of scale deposition in domestic hot water systems.

(q) Chloride: Waters subject to saline intrusion and some very hard waters may exceed the limit for chloride. The chloride ion itself does not constitute a public health hazard at the concentrations encountered in water used for potable purpose. However it is necessary to take account of the following matters when considering an authorisation for chloride:

(1) depending on the cations associated with chloride, the taste of the water may be unacceptable to the consumer even when the chloride limit is not exceeded;

(2) water containing chloride at concentrations approaching or exceeding the limit may exceed the maximum acceptable relaxed standard for sodium.

2. Local authorities are able to authorise relaxations due to the nature and structure of the ground in the area from which the supply emanates only where they are satisfied that they will not give rise to a public health hazard. In considering the effect on health of proposed relaxations, local authorities should consult their medical

advisors on environmental health and refer to the relevant guidelines and assessments produced by the World Health Organisation (see paragraph 5.7).

3. The Secretaries of State have authorised relaxations for public water supplies which prescribed maximum concentrations for the parameters concerned. It is the view of the Government, after consideration of relevant medical and toxicological advice, that no public health hazard is known or expected from the use of water supplies subject to these authorisations. For illustrative purposes the highest maximum concentrations allowed under these relaxations are set out below:

Aluminium	3,300 ug Al/l
Ammonium	0.81 mg NH_4/l
Colour	230 mg/l Pt/Co scale
Hydrogen ion	4.0 pH unit (minimum)
Iron	2,800 ug Fe/l
Magnesium	80 mg Mg/l
Manganese	2,000 ug Mn/l
Odour	13 Dilution No.
Potassium	30 mg K/l
Sodium	220 mg Na/l
Sulphate	450 mg SO_4/l
Taste	9 Dilution No.
Turbidity	24 Formazin Turbidity units

APPENDIX 9

SUMMARY OF METHODS FOR IMPROVEMENT OF PRIVATE WATER SUPPLIES

1. Introduction

There is no universal solution for improving private water supplies. Each case has to be considered on its merits – the solution selected will depend largely on the following factors:–

the quality and quantity of water involved;
the availability of alternative sources or supplies;
the feasibility of corrective water treatment (or plumbing replacement);
the availability of electric power;
the location of the site;
the capital and running costs;
the skill needed to operate a suitable water treatment process.

2. Deficiencies in Quantity – possible solutions

If quantity is regularly inadequate consider:–

an alternative or additional private source or supply;
connection to a mains supply.

If quantity is intermittently inadequate consider also:–

the provision of water in containers (tanker, keg, bottle, storage tank).

3. Deficiencies in Quality – possible solutions

3.1 Bacteriological quality

Guidance on what constitutes a risk to public health from bacteria etc is given in the Standing Committee of Analysts Report 71, The Bacteriological Examination of Drinking Water Supplies 1982. When an unsatisfactory supply is found the following action may be considered:–

a. Temporary solution

(i) Advise consumers to boil water for drinking and cooking. The time of boiling depends on the organisms present and the degree of contamination. Generally, in the UK, vigorous boiling for one minute is sufficient. For gross contamination up to ten minutes boiling may be required. After boiling, cool, allow to settle and, if necessary, decant or filter through a coffee filter paper.

(ii) If the water is clear, odourless and free from suspended matter, advise consumers to add sterilising tablets to water in glass containers. If the water is turbid or discoloured, sterilising tablets cannot be relied upon to effect disinfection unless used in considerable quantities when there is no reliable way of testing their effectiveness. The manufacturers advice on the use of these tablets must be followed.

b. Permanent solution

Identify and remove source of contamination if practicable.
Consider alternative sources or supplies (private or public).
Consider corrective water treatment.
Consider provision of container water (tanker, keg, bottle, storage tank) for drinking and cooking.

3.2 Chemical quality

a. Temporary solution

For supplies which are unsatisfactory because of suspended solids and some forms of iron and manganese, boiling for one minute, cooling, settling and decanting or filtering through a coffee filter paper will improve quality.

For supplies which are corrosive to metals, running off standing water before drawing water for drinking and cooking is advised.

b. Permanent solution

Identify and remove source of contamination if practicable.
Consider alternative sources or supplies (private or public). .
Consider corrective water treatment.
Consider provision of container water (tanker, keg, bottle, storage tank) for drinking and cooking.

4. Corrective Water Treatment Methods

If corrective water treatment is necessary the method selected will depend on the factors listed in paragraph 1. Combinations of treatment methods may be required. For small quantities of water eg where only the water used for drinking and cooking needs to be treated, the temporary solutions 3.1(a) and 3.2(a) or the provision of container water may be also the most practical long term solutions. All exposed sources of water supply should have a screened intake. The capital costs will vary considerably depending on the quantity of water to be treated and the complexity of the equipment required. An estimate of the likely range of costs is given.

Bacteriological contamination

For slight contamination:-

disinfection using sodium or calcium hypochlorite solutions, calcium hypochlorite tablets or ultraviolet radiation (capital cost up to £1,500);

bacteriostatic filtration using a silver impregnated ceramic filter fitted "in line" or on the tap (capital cost £60-1000).

For gross contamination:-

preliminary settlement possibly assisted by addition of coagulants, sand filtration (slow, pressure or rapid gravity) and disinfection (capital cost £1,500 upwards).

Chemical contamination

For suspended solids:-

sedimentation and/or sand or gravel filtration (capital cost £900 upwards).

For corrosive waters (usually low pH value):-

alkali dosing with lime, sodium carbonate or sodium hydroxide solution (capital cost £200-1000);
contact (usually filtration) with a dolomitic material (capital cost £50-5,000);
carbon dioxide removal by aeration (capital cost £100-1000).

For highly coloured waters:-

coagulation, sedimentation and/or sand filtration (capital cost £500 upwards).

For iron and manganese:-

catalytic filtration (capital cost £100-1000);
oxidation using aeration or chlorination and sand filtration (capital cost £1,500 upwards).

For taste and odour:-

activated carbon filtration (capital cost £50-500);
permanganate dosing and sand filtration (capital cost £1000 upwards).

For nitrate:-

ion exchange (capital cost £50-500).

For high mineral content waters:-

ion exchange or reverse osmosis (capital cost £500 upwards)
chemical precipitation (capital cost £500 upwards)

5. Further Advice

Owners of private supplies should consult their local authority, specialist consultant or a reputable water treatment equipment supplier before deciding on and installing corrective water treatment. The British Effluent and Water Association, 5 Castle Street, High Wycombe HP13 6RZ (telephone 0494 444544) will be able to provide lists of their members offering particular types of equipment and the Royal Society of Chemistry, Burlington House, Piccadilly, London WC1V OBN (telephone 071-631 1355) and the Association of Consulting Engineers, Alliance House, 12 Caxton Street, London SW1H OQL (telephone 071-222 6557) will be able to provide information on consultants specialising in water treatment.